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THE INCREASE IN INDUSTRIAL ACCIDENTS.

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Introduction.

In a progressive industrial country, does the number of accidents to workmen during employment tend to increase constantly from year to year?

On *a priori* grounds, it would seem reasonable to expect such an increase. The constant increase in the size of the industrial plants, the greater number of workmen who must be employed on team work with the consequent greater opportunities for errors and mistakes; the greater size, greater power, and higher speed of the machinery and appliances used are factors which would inevitably tend to produce accidents in a greater number as industrial processes are improved. On the other hand there is a strong opposing tendency in the fact that these risks are becoming more and more the subject of careful study, and with the improvement in processes and appliances a corresponding improvement in protective measures is taking place.

It is of interest in this connection to refer to the fact that the special report of the German insurance office on accidents for the year 1907 states that an increasing accident rate is an unfortunate but inevitable feature of modern industry, while according to the special British report on accidents, "there has probably been little, if any, increase in the accident risk during recent years." In view of these conflicting opinions, it will be worth while to discuss the general aspects of the accident returns in the three countries which have published information on this point.

Statistics of industrial accidents may be derived from two sources; the factory inspection department and the compensation system. Of the two, the data supplied by the latter are usually more accurate and more detailed, especially in countries like Germany and Austria where there is a central office with the special duty of observing the operation of the compensation system. In Great Britain, a department committee has compared the returns of the factory inspection service with the reports of the compensation system and concludes that the inspection service has secured information of practically all accidents in British factories.

The available statistical information on the subject of industrial accidents in recent years has greatly increased in quantity and improved in accuracy. In spite of this, such data must be used with caution; it is obvious that when a compensation law offers an immediate pecuniary relief to the injured workman, he will be much more likely to report his accident than if he were compelled to bring suit under an employers' liability law and prove according to the rules of legal evidence that the employer or his representative was at fault. Since the only statistical data on this subject worth considering are those compiled in countries with compensation systems and since such systems always subject the injured workman to the temptation of exploiting the fund, a certain amount of care must be exercised especially in regard to the figures for the first ten years of the operation of the compensation system. Within that period it is reasonable to assume that such factors have become fairly constant, or at least well defined, and that an increase in the accident rate thereafter will be, as a rule, the result of other causes.

The term "accident" is also in need of definition; in the following pages it is used in the sense of an injury sustained in the course of the employment and having a causal connection with it. Four classes of accident are usually distinguished: (1) fatal accidents; (2) accidents causing disability which is permanent and total, preventing the injured workman from earning a livelihood; (3) accidents causing disability which is permanent but partial, that is, reducing his earning capacity

but not entirely destroying it; and (4) accidents causing disability from which the injured workman recovers within a period specified in the law.

Germany.

The statistics of industrial accidents in Germany reproduced in the following pages are derived from material published by the Imperial Insurance Office (*Reichs-Versicherungsamt*), principally in its monthly bulletin, "Amtliche Nachrichten des Reichs-Versicherungsamts." The January number of each year contains a report on the operations of the accident and invalidity organizations of the imperial insurance system for the year but one previous to the date of the bulletin. Every ten years the imperial insurance office makes a special study of the accidents of a selected year, in which the data are presented in considerable detail; such special studies of accidents in industries have been made for the years 1887, 1897, and 1907 and have been published in the monthly bulletin. Similar special studies have been made of accidents in agricultural establishments for the years 1891 and 1901. The first of these special studies, however, was made in 1881 in connection with the plans for the accident insurance law of 1884. The years to which these studies relate and the volumes in which they appeared are as follows:

1881, Statistik des Deutschen Reichs, Erste Reihe, Band 53, Ergänzungsheft.

1887, Amtliche Nachrichten des Reichs-Versicherungsamts 1890, p. 199 et seq.

1897, Amtliche Nachrichten des Reichs-Versicherungsamts 1889 Beiheft; 1900 Beiheft 1, 2. Gewerbe-Unfallstatistik für das Jahr 1897.

1907, Amtliche Nachrichten des Reichs-Versicherungsamts, 1910, I Beiheft, I–III Teil. Gewerbe-Unfallstatistik für das Jahr 1907.

It should be kept in mind that the data in the following tables refer to accidents compensated and not to accidents reported; also that the accidents of any one year are the accidents for which compensation was granted for the first

time in that year, though the accident itself may have occurred in a previous year or even at an earlier time.

The most important feature of the data is that they include only the accidents resulting in death or disability which lasted longer than thirteen weeks. The German figures include, therefore, only the serious accidents. The accidents which may have been reported but are not included consist of first, those causing disability of less than thirteen weeks (which are compensated under the sickness insurance system), and second, accidents reported but which the administrative bodies have decided are not industrial accidents within the meaning of the law.

It will be remembered that the German accident insurance system is administered by a number of employers' mutual associations, each association covering a specified industry or group of industries. For convenience of administration, some of these associations include a number of diversified industries which did not employ a sufficiently large body of employees to permit of a separate organization; thus dairying, distilling, and starch manufacturing are grouped into one association (association number 38). The miscellaneous food products association (number 36) does not include the flour or sugar industries, but practically all the other food industries. The classification of accidents by industries given in the following tables is based on the groups included in these associations, and this system accounts for the fact that the classification of the industries is in some respects not so logical as we are accustomed to find in other German statistical studies.

To show how comprehensive the German accident insurance system is, the following table compares the number of persons insured with the total population:

TABLE I.

NUMBER OF PERSONS (INCLUDING DUPLICATIONS) INSURED AGAINST ACCIDENT, COMPARED WITH THE POPULATION OF THE EMPIRE, BY SEX, FOR SPECIFIED YEARS.

[Source: Statistik der Arbeiterversicherung des Deutschen Reichs. 1885 to 1906.]

Year.	Population of the Empire.			Total Number of Persons Insured (Estimated).	Number of Persons Insured per 1,000 Population.	Number of Persons Insured per 1,000—		
	Male.	Female.	Total.			Male Wage-earners.	Female Wage-earners.	Total Wage-earners.
1885	22,864,000	23,843,000	46,707,000	3,251,000	70	330	173	287
1888	23,592,000	24,576,000	48,168,000	10,353,000	215	(a)	(a)	(a)
1895	25,523,000	26,478,000	52,001,000	16,889,000	325	1,322	1,238	1,297
1906	30,149,000	31,028,000	61,177,000	19,227,000	314	1,273	1,193	1,250
1908	.....	.....	(b) 63,125,000	(b) 27,000,000	(a)	(a)	(a)	(a)

The general accident rate in Germany is shown in the official reports, both for the average number of insured persons during the year and for the number of "full-time workers, *i. e.*, 300 day workers. The number of "full-time" workers is ascertained by dividing the number of days or the number of shifts worked, by 300. Tables II and III show the absolute figures and the relative figures for the accidents compensated in the period 1885 to 1908.

(a) Not reported. (b) Estimate of Reichs-Arbeitsblatt.

TABLE II.

NUMBER OF ACCIDENTS TO INSURED PERSONS, AND RESULTS OF INJURY, 1885–1908, IN GERMANY.

[Source: Amtliche Nachrichten des Reichs-Versicherungsamts, 1887 to 1910.]

Year.	Average Number of Persons Insured.	Number of Persons Compensated for the First Time.				
		Accidents Resulting in—				Total.
		Death.	Permanent Disability.		Temporary Disability of over 13 weeks.	
			Total.	Partial.		
Industrial Accident Associations. (a)						
1885 (b)	2,986,248	226	.....	.....	.....	226
1886	3,473,435	2,422	1,548	3,780	1,973	9,723
1887	3,861,560	2,956	2,827	8,126	2,061	15,970
1888	4,320,663	2,990	1,899	10,344	3,755	18,988
1889	4,742,548	3,457	2,357	12,998	3,958	22,770
1890	4,926,672	3,686	1,896	16,399	5,040	27,021
1891	5,093,412	3,716	1,604	17,790	5,881	28,991
1892	5,078,132	3,382	1,531	18,472	6,061	29,446
1893	5,168,973	3,680	1,397	20,174	6,775	32,026
1894	5,243,965	3,549	887	20,560	8,743	33,739
1895	5,409,218	3,757	818	19,837	10,376	34,788
1896	5,734,680	4,152	618	20,860	14,039	39,669
1897	6,042,618	4,381	680	21,836	16,004	42,901
1898	6,316,834	4,749	568	22,940	17,873	46,130
1899	6,658,571	4,897	610	24,435	20,458	50,400
1900	6,928,894	5,226	616	25,388	21,674	52,904
1901	6,884,076	5,121	625	26,734	24,292	56,772
1902	7,100,537	4,705	644	27,340	25,938	58,627
1903	7,466,484	4,854	642	28,071	28,411	61,978
1904	7,849,120	5,176	629	29,540	31,407	66,752
1905	8,195,732	5,325	583	29,949	33,837	69,694
1906	8,625,500	5,569	587	30,667	35,847	72,670
1907	9,018,367	6,223	586	30,787	39,121	76,717
1908	8,917,772	6,070	582	29,525	39,653	75,830
Agricultural Accident Associations.						
1888	5,576,765	354	43	180	231	808
1889	8,088,698	1,368	260	2,663	2,340	6,631
1890	(c)	1,877	438	5,404	4,854	12,573
1891	12,289,415	2,153	644	8,873	7,689	19,359
1892	(c)	2,026	785	11,012	9,408	23,231
1893	(c)	2,142	770	14,899	9,742	27,553
1894	(c)	2,261	560	17,185	12,485	32,491
1895	(c)	2,213	571	19,529	15,070	37,383
1896	11,189,071	2,363	623	22,222	17,726	42,934
1897	(c)	2,474	544	23,260	19,160	45,438
1898	(c)	2,598	332	23,366	21,387	47,683
1899	(c)	2,608	440	25,313	22,926	51,287
1900	(c)	2,662	511	24,181	22,957	50,311
1901	(c)	2,751	568	25,954	26,710	55,983
1902	(c)	2,672	541	26,408	28,313	57,934
1903	(c)	2,893	604	28,379	30,521	62,397
1904	(c)	2,948	668	31,428	30,959	66,003
1905	(c)	2,907	610	32,009	30,809	66,335
1906	(c)	2,872	593	28,580	29,842	61,887
1907	(c)	2,843	507	27,049	32,274	62,673
1908	17,179,000	2,980	371	25,573	32,685	61,609

(a) After 1888 including the number of persons who received compensation from accident associations of the building trades and after 1891 from the navigation accident association.
(b) For the last three months of the year.
(c) Not reported.

TABLE II—*Continued.*

Year.	Average Number of Persons Injured.	Number of Persons Compensated for the First Time.				
		Accidents Resulting in—				Total.
		Death.	Permanent Disability.		Temporary Disability of over 13 weeks.	
			Total.	Partial.		
Public Authorities.						
1885 (b)	265,088	42	.....	.....	.....	42
1886	251,878	294	230	181	112	817
1887	259,977	314	339	336	143	1,132
1888	446,250	348	274	573	245	1,440
1889	543,320	435	291	886	436	2,048
1890	604,380	484	374	1,102	484	2,444
1891	632,459	559	347	1,434	519	2,859
1892	646,733	503	348	1,508	618	2,977
1893	460,462	514	340	1,597	699	3,150
1894	658,367	551	337	1,742	759	3,389
1895	690,835	478	317	1,686	875	3,356
1896	681,439	586	306	1,900	1,008	3,800
1897	715,758	561	283	1,982	1,161	3,987
1898	740,108	637	239	2,050	1,284	4,210
1899	756,482	619	276	2,090	1,364	4,349
1900	774,926	679	263	2,140	1,357	4,439
1901	793,565	629	253	2,228	1,471	4,581
1902	793,150	598	250	2,176	1,699	4,723
1903	809,867	623	292	2,323	1,762	5,000
1904	837,834	628	307	2,267	1,716	4,918
1905	857,709	696	294	2,098	2,004	5,092
1906	912,642	700	283	2,100	2,086	5,169
1907	964,589	749	263	2,257	2,044	5,313
1908	977,351	806	207	2,312	2,201	5,526

(b) For the last three months of the year.

TABLE III.

NUMBER OF FULL-TIME WORKERS AND NUMBER PER 1,000, FULL-TIME WORKERS INJURED BY ACCIDENTS COMPENSATED FOR THE FIRST TIME IN EACH YEAR OF THE PERIOD 1897-1908 IN GERMANY.

[Source: Amtliche Nachrichten des Reichs-Versicherungsamts, 1899 to 1910.]

Year.	Number of Full-Time Workers.	Number of Injured Persons Compensated for the First Time.	Number per 1,000 Full-Time Workers Compensated for the First Time. Accidents Resulting in—				
			Death.	Permanent Disability.		Temporary Disability of over 13 Weeks.	Total.
				Total.	Partial.		
Industrial Accident Associations:							
1897	5,170,366	41,746	0.82	0.12	4.11	3.02	8.07
1898	5,462,829	44,881	.85	.10	4.09	3.18	8.22
1899	5,781,495	49,175	.83	.10	4.12	3.46	8.51
1900	6,021,856	51,697	.85	.10	4.11	3.52	8.58
1901	6,000,615	55,525	.83	.10	4.36	3.96	9.25
1902	6,226,584	57,244	.73	.10	4.28	4.08	9.19
1903	6,553,514	60,550	.72	.09	4.19	4.24	9.24
1904	6,868,496	65,205	.72	.09	4.20	4.48	9.49
1905	7,159,842	68,360	.72	.08	4.11	4.64	9.55
1906	7,512,728	71,227	.72	.08	4.01	4.67	9.48
1907	7,869,421	75,370	.77	.07	3.85	4.89	9.58
1908	7,868,531	74,581	.76	.07	3.70	4.95	9.48
Government Industrial Establishments and Operations:							
1897	451,853	3,070	1.09	.56	3.54	1.60	6.79
1898	481,277	3,284	1.16	.42	3.46	1.78	6.82
1899	488,725	3,485	1.13	.50	3.61	1.89	7.13
1900	506,040	3,597	1.20	.47	3.60	1.84	7.11
1901	512,797	3,713	1.07	.47	3.68	2.02	7.24
1902	516,245	3,824	1.02	.45	3.63	2.31	7.41
1903	530,579	4,066	1.01	.52	3.77	2.36	7.66
1904	558,042	4,015	1.02	.53	3.52	2.12	7.19
1905	575,320	4,270	1.07	.49	3.15	2.71	7.42
1906	609,297	4,362	1.04	.44	2.97	2.71	7.16
1907	662,211	4,537	1.02	.38	3.00	2.45	6.85
1908	672,070	4,758	1.10	.30	3.07	2.61	7.08

Table II shows the basis for the relative data in Table III. It should be stated that the system of reporting accidents on the basis of the number of full-time (300 day) workers was not begun until 1897.

The relative data are of course the more interesting. The conspicuous fact presented by the tables is that the total accident rate in the insured industrial establishments increased from 8.07 per 1,000 full-time workers in 1897 to 9.48 per 1,000 full-time workers in 1908, an increase of 1.41 per 1,000 full-time workers. In the government plants, etc., there was a similar increase, though not so marked. The

increase in the total rate was almost uninterrupted from 1897 to 1905, inclusive, but since 1905 there has been a tendency for the total rate to remain constant. The rates based on the average number of insured persons show practically the same tendency. The rates for government establishments, being based on a smaller number of insured persons, show wider fluctuations, but have the same general tendency. In other words, the total or general accident rate in German industries seems now to have reached a stationary point.

The items composing this total rate, however, indicate that there has been a marked decrease in the rate for serious accidents and that the increase is entirely due to a growth in the number of less serious accidents. The fatalities show a clear tendency to decrease, the rate in private establishments having decreased from 0.82 per 1,000 full-time workers in 1897 to 0.76 per 1,000 in 1908. Furthermore, the rate for permanent total disablements—the most expensive type of injury—has decreased from 0.12 per 1,000 full-time workers in 1897 to 0.07 per 1,000 in 1908, in private establishments. Likewise the rate for partial permanent disablements—which result in higher expenditures for compensation than fatal injuries—has also decreased; the rate for these injuries in private industrial establishments was 4.11 per 1,000 full-time workers in 1897, while in 1908 it had fallen to 3.70 per 1,000 full-time workers.

The increase in the general accident rate in German industries is therefore due entirely to the increase in the temporary disablements, that is, the injuries from which the workman eventually recovers. In 1897 there were 3.02 per 1,000 full-time workers in private undertakings who sustained injuries causing disability lasting longer than thirteen weeks; in 1908 this rate had increased to 4.95 per 1,000 full-time workers. If the workmen in German industries sustain a greater number of accidents at the present time than formerly, these accidents are much less serious in their consequences than was formerly the case.

This result is most probably due to the great care now exercised through the use of preventive measures such as protective appliances and stricter enforcement of rules of

conduct. Mention should also be made of the elaborate surgical treatment now provided for injured persons; the German insurance system has demonstrated that by elaborate courses of treatment it is possible to restore the working capacity of injured persons to an extent hitherto unknown. Stiff joints which formerly made it impossible for a workman to engage in a trade, are now restored to usefulness; crushed fingers and arms which were formerly amputated are now carefully treated and made serviceable. In view of the great success attained by the Germans in this direction, it is a matter of regret that the recently enacted American laws on the compensation of industrial accidents pay almost no attention to this important phase of the subject.

It is of interest in this connection to present the data for the separate industry groups. The following table was derived from the special study of the accidents compensated in the year 1907 and because of the more accurate method of compilation used in this study, the decimal figures of the rates in some cases differ from those given in the annual reports which were used for the preceding tables, though otherwise the rates are the same.

TABLE IV.

NUMBER OF PERSONS KILLED OR INJURED PER 1,000 FULL-TIME WORKERS, BY INDUSTRY GROUPS, IN GERMANY, 1897–1907.

[Source: Amtliche Nachrichten des Reichs-Versicherungsamts, 1910. I Beiheft, I Teil. Gewerbe-Unfallstatistik für das Jahr 1907, pp. 18* to 23*.]

Association Number.	Industry, etc.	Number of Persons Killed or Injured per 1,000 Full-time (300 day) Workers in—										
		1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
	A. TOTALS.											
	Grand total	8.08	8.18	8.47	8.54	9.16	9.13	a9.21	a9.41	a9.46	a9.38	9.44
	Industrial accident associations (not including institutes)	8.07	8.22	8.51	8.58	9.25	9.19	9.24	9.49	9.55	9.48	9.58
	Subsidiary institutes of building trades, engineering and navigation associations	17.89	13.82	14.14	14.61	15.31	15.59	a17.06	a17.76	a14.92	a16.35	16.57
	Public authorities	6.79	6.82	7.13	7.11	7.24	7.41	7.66	7.20	7.42	7.16	6.85

(a) Not including subsidiary institute of the navigation accident association.

TABLE IV—*Continued.*

Association Number.	Industry, etc.	Number of Persons Killed or Injured per 1,000 Full-time (300 day) Workers in—										
		1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
	B. GROUPS OF ASSOCIATIONS.											
1	Mining	12.09	12.77	12.10	12.19	13.06	13.53	14.59	15.46	15.53	15.70	15.54
2	Quarrying	11.94	11.38	12.40	12.44	14.78	15.33	14.91	14.83	15.14	14.98	15.35
3	Fine mechanical products	5.38	5.51	5.14	5.26	6.78	5.89	5.82	6.43	7.08	6.68	6.64
4–11	Iron and steel	b8.92	b9.76	b10.05	b10.07	b11.39	11.45	11.25	11.62	11.45	11.55	11.62
12,13	Metal working	4.21	4.34	4.42	4.75	5.09	5.69	5.89	6.45	6.82	7.16	7.63
14	Musical instruments	3.96	4.35	5.04	4.94	5.26	5.33	5.11	5.34	5.37	5.04	6.92
15	Glass	4.07	4.31	4.87	4.19	4.77	4.28	4.92	4.89	5.08	4.68	4.46
16	Pottery	2.33	2.38	2.04	2.73	3.01	3.06	2.73	3.23	3.31	3.03	3.39
17	Brick and tile making	6.71	6.49	7.34	8.60	8.24	8.74	7.85	8.61	9.42	8.99	9.59
18	Chemicals	7.76	7.09	7.79	8.39	9.04	7.85	7.98	8.65	8.71	9.24	9.88
19	Gas and water works	5.14	5.39	5.20	5.42	6.10	5.94	6.96	6.78	6.44	6.23	6.45
20	Linen	4.49	4.17	5.16	4.32	4.49	4.65	3.80	4.52	3.97	4.91	4.76
27	Silk	1.26	1.54	1.41	1.64	1.69	1.31	1.36	1.44	1.46	1.30	1.29
20–27	Textiles including, linen and silk	3.25	3.13	3.34	3.45	3.21	3.01	3.04	3.00	3.07	3.07	3.00
28	Paper making	9.27	9.23	8.81	8.96	10.66	9.83	9.52	9.51	9.65	9.00	9.21
29	Paper products	3.39	3.19	3.28	3.58	3.45	3.16	3.41	3.53	4.08	3.81	3.81
30	Leather	5.23	5.98	4.96	6.06	6.66	6.15	6.53	6.45	6.51	6.36	7.14
31–34	Woodworking	11.77	12.07	13.00	12.93	13.35	12.35	12.41	12.68	13.05	13.19	12.28
35	Flour milling	13.51	13.32	14.43	13.83	14.49	14.96	15.67	16.18	16.24	15.72	16.06
36	Food products	6.79	5.29	5.86	5.97	6.40	6.33	5.71	5.99	5.69	5.39	6.27
37	Sugar	7.89	7.41	8.74	8.41	7.97	9.23	8.27	9.00	8.41	8.86	9.10
38	Dairying, distilling, and starch	7.67	7.96	9.01	7.57	8.22	8.36	7.38	8.33	8.68	8.02	8.10
39	Brewing and malting	11.31	10.87	11.21	12.17	11.88	11.88	12.78	13.22	13.08	11.93	13.05
40	Tobacco	.42	.43	.46	.61	.54	.59	.65	.53	.48	.56	.49
41	Clothing	2.18	2.67	2.65	2.70	3.29	2.72	2.85	3.07	2.67	2.88	2.81
42	Chimney sweeping	6.14	5.50	5.14	4.48	4.42	5.27	5.39	5.27	5.27	4.71	5.98
43–54	Building trades (not including institutes)	11.04	10.77	10.92	10.72	11.44	12.16	11.34	11.24	11.04	10.77	11.22
55	Printing and publishing	2.66	2.05	2.31	2.66	2.52	2.84	2.48	2.45	3.12	3.16	3.02
56	Private railways	5.86	4.61	5.72	4.53	5.37	6.26	6.68	5.65	5.78	6.57	5.56
57	Street and small railroads	5.14	5.65	7.07	6.58	8.00	8.36	7.99	7.13	7.60	7.45	6.98
58	Express and storage	12.36	12.19	13.95	14.15	14.52	13.90	13.57	11.62	12.53	12.23	11.34
59	Livery, drayage, cartage, etc.	16.97	18.14	16.50	15.11	20.11	20.22	24.12	22.68	25.31	24.14	26.61
60–62	Inland navigation	11.35	10.70	11.73	11.74	13.84	12.97	13.69	15.02	14.31	14.11	11.82
63	Marine navigation (not including institute)	8.95	8.01	9.02	8.00	7.30	7.67	6.49	6.72	6.50	6.70	6.22
64	Engineering, excavating, etc. (not including institute)	11.85	12.38	12.82	12.82	13.87	16.61	16.24	15.17	14.74	12.74	12.95
65	Meat products	7.03	7.13	8.08	7.66	10.05	9.19	9.90	10.17	10.02	8.90	8.80
66	Blacksmithing, etc.	(c)	(c)	(c)	(c)	(c)	3.61	5.89	8.77	7.79	8.63	7.87
	C. PUBLIC AUTHORITIES.											
	Establishments of the naval administration	5.91	6.55	7.58	10.56	9.54	10.28	9.47	6.35	4.69	4.80	5.39
	Establishments of the military administration	5.82	6.01	6.13	4.69	4.22	5.40	6.01	4.81	4.37	4.22	4.00
	Postal and telegraph administration	5.66	4.89	5.19	6.23	5.45	4.91	4.24	3.36	4.06	3.70	3.21
	Railway administration	7.03	7.06	7.33	7.33	7.48	7.68	7.82	7.63	8.14	7.71	7.23
	Dredging, towing, etc.	11.56	9.31	12.65	10.80	14.01	12.99	10.94	13.15	15.75	11.85	12.13
	Building operations (States and Empire)	6.59	6.50	7.65	7.03	8.42	8.11	8.55	7.78	7.17	7.39	7.90
	Marine navigation	9.03	3.98	7.29	9.74	11.86	12.20	22.47	6.70	3.33	8.10	1.46
	Building operations of local governments	5.99	6.26	5.84	5.92	6.04	5.81	7.58	6.87	6.19	7.18	7.43

(*b*) Including blacksmithing, etc. (Association 66).
(*c*) Included in Associations 4–11.

According to the preceding table there are nine industry groups which had a general accident rate per 1,000 full-time workers which was higher in 1907 than at any time during the preceding five years; these groups are quarrying, metal working, musical instrument making, pottery, brick and tile making, chemicals, leather, chimney-sweeping, and livery, drayage, etc. In only two of these groups, namely, musical instrument making and livery, drayage, etc., did the 1907 rate exceed the highest previous rate by more than one per 1,000 full-time workers; in the musical instrument group the rate for 1907 was 1.55 per 1,000 full-time workers higher than in any previous year and in the livery, drayage, etc., group the 1907 rate was 1.30 per 1,000 full-time workers higher than in any previous year. It should be stated, however, that both of these groups include only small numbers of workmen.

On the other hand some of the most important groups show lower rates in 1907 than in any of the five years preceding; these include the groups private railways, street and small railways, express and storage, inland navigation, marine navigation and meat products. It is also noteworthy that the group engineering, excavating, etc., with the exception of the year 1906, had a lower rate in 1907 than in any of the preceding five years. Most of the groups just mentioned are industries in which a high accident rate is the rule.

The increase in the general accident rate has been the cause of no little concern to the officials of the accident insurance system. The special study of the accidents compensated in 1907 refers to a circular letter which was sent to each accident association, asking for an expression of opinion as to what were the causes of this increase. The returns showed that the increase was principally due to the following causes: Stricter control in regard to reporting accidents, employment of untrained and inexperienced workmen, more frequent prosecution of claims by the injured persons because of their better knowledge of the law, better knowledge of the literal definition of what is an "industrial accident," increase of the cases in which the officials of the insurance system admitted a causal connection between an existing malady or weakness and its

aggravation by an accident, the frequent granting of a transitory or "accustoming" pension in cases where strictly speaking there was no longer a loss of earning power, and finally the frequency of changes in the personnel of the labor force of the plant.

The reply of the mine-owners' association (*Knappschafts-Berufsgenossenschaft*), contained the following statement of what they as employers considered the leading causes of this increase:

1. The workmen have become more and more familiar with the accident insurance system, though this cause applies more accurately to the first 15 years of the insurance, up to about 1900, than for the later period.
2. The insured persons are more and more disposed to report or connect previous pathological conditions as being due to a real or supposed accident; in mining work, it is extremely easy for the insured persons to find some incident which preceded their disease and to connect this incident with the disability. In a number of cases the insured persons have resorted to trickery to obtain an accident pension.
3. More and more the workmen seek to obtain compensation for every accident regardless of how insignificant it may be. The result of this is that the officials are induced to report as accidents trifling incidents which would not otherwise have been reported at all.
4. The careful control to which the reporting of industrial accidents is subjected.
5. The more intense methods of working in the industry.
6. The increasing use of machinery.
7. The increasing use of foreign workmen.
8. The more frequent employment of inexperienced workmen, who, because of the lack of apprenticeship, are not familiar with mining work and its dangers.
9. The rapid change in the personnel of the workmen has developed to an unexpected extent.
10. The unwise manner of living of many of the workmen, which diminishes their mental capacity and their physical powers of resistance.
11. The failure to observe the rules for the prevention of accidents and the regulations of the mining inspectors.*

*Bulletin du Comité Permanent des Congrès Internationaux des Assurances Sociales, 1908.

To sum up the German experience, it may be said that from 1897 to 1905 there was a steady increase in the general or total accident rate, but that since 1905 this rate has shown a tendency to remain constant. Since there has been a decrease in the serious injuries, this means that the minor injuries are still increasing, as the tables given above indicate.

Austria.

The statistics of accidents in Austria are, as in the case of Germany, derived from the operations of the accident insurance system. In order to make clear the basis of the statistical information it should be stated that in Austria the accident insurance system is administered by a series of territorial organizations including all the industries in their area except the railways, and mining which have separate organizations. A series of sick funds provides the benefits for the first four weeks of disability, after which the disabled workman is transferred to the care of the accident insurance institutes. The German figures, it will be remembered, relate only to accidents causing either death or disability for more than thirteen weeks; the Austrian figures, therefore, show much higher rates than the German returns. The term "full-time" worker has the same meaning as in the case of the German statistics.

The following tables show the scope of the Austrian accident insurance system and the development of the general accident rate from 1890 to 1907.

TABLE V.

NUMBER OF ACCIDENTS AND NUMBER PER 10,000 FULL-TIME WORKERS IN AUSTRIA, 1890-1907.

[Source: Amtliche Nachrichten betr. Unfall- und Krankenversicherung, 1907-1909.]

Year.	Number of Full-time Workers Insured.	Accidents Compensated.						Accidents for Which Compensation was not Paid (Disability not Lasting Four Weeks, etc.).	
		Fatal.		Non-fatal.		Total.			
		Number.	Number per 10,000 Insured Full-time Workers.	Number.	Number per 10,000 Insured Full-time Workers.	Number.	Number per 10,000 Insured Full-time Workers.	Number.	Number per 10,000 Insured Full-time Workers.
1890	823,166	548	6.7	6,193	75.2	6,741	81.9	9,300	113.0
1891	857,284	565	6.6	8,219	95.9	8,784	102.	12,532	146.2
1892	893,882	574	6.4	8,348	99.0	9,422	105.4	16,876	188.8
1893	940,943	649	6.9	10,252	109.0	10,901	115.9	22,016	234.0
1894	989,987	670	6.8	11,882	120.0	12,552	126.8	27,707	279.9
1895	1,216,731	835	6.8	15,560	127.9	16,395	134.7	38,167	313.7
1896	1,286,433	929	7.2	17,615	137.3	18,544	144.5	46,159	357.3
1897	1,331,957	929	7.0	18,732	140.6	19,661	147.6	49,622	372.5
1898	1,395,710	977	7.0	19,999	143.3	20,976	150.3	54,170	388.1
1899	1,438,584	1,044	7.3	21,622	150.3	22,666	157.5	56,594	393.4
1900	1,462,350	1,003	6.8	22,036	150.7	23,039	157.5	57,495	393.2
1901	1,481,857	995	6.7	23,139	156.2	24,134	162.9	57,471	347.8
1902	1,483,293	901	6.1	24,412	164.6	25,313	170.7	58,690	395.7
1903	1,518,518	909	6.0	24,550	161.7	25,459	167.7	62,696	412.8
1904	1,609,208	1,037	6.4	26,575	165.2	27,612	171.6	72,132	448.2
1905	1,645,423	1,111	6.8	27,676	168.2	28,787	175.0	74,948	455.4
1906	1,726,824	1,089	6.3	30,380	175.9	31,469	182.2	77,649	449.7
1907	1,824,939	1,189	6.5	32,303	177.0	33,492	183.5	85,560	468.8

TABLE VI.

NUMBER OF ACCIDENTS REPORTED PER 10,000 FULL-TIME WORKERS, BY RESULTS OF ACCIDENTS IN AUSTRIA, 1890–1907.

[Source: Amtliche Nachrichten betr. Unfall-und Krankenversicherung, 1894–1909.]

Year.	Number of Full-time Workers Insured.	Accidents per 10,000 Full-time Workers Insured.			
		Number Reported.	Number Compensated.		
			Temporary Disability Lasting more than Four Weeks.	Permanent Disability.	Death.
1890	823,166	194.9	55.9	19.3	6.7
1891	857,284	248.6	70.8	25.1	6.6
1892	893,882	294.2	70.7	28.3	6.4
1893	940,943	349.8	74.5	34.5	6.9
1894	989,987	406.7	82.6	37.4	6.8
1895	1,216,731	448.4	87.4	40.5	6.8
1896	1,286,433	503.8	95.2	42.1	7.2
1897	1,331,957	520.2	102.7	37.9	7.0
1898	1,395,710	538.5	105.5	37.8	7.0
1899	1,438,584	551.0	108.6	41.7	7.3
1900	1,462,350	550.7	109.9	40.8	6.8
1901	1,481,857	550.7	113.4	42.8	6.7
1902	1,483,293	566.4	124.7	39.9	6.1
1903	1,518,518	580.5	126.7	35.0	6.0
1904	1,609,208	619.8	124.9	40.3	6.4
1905	1,645,423	630.4	(a) 168.2	(b)	6.8
1906	1,726,824	631.9	(a) 175.9	(b)	6.3
1907	1,824.939	652.3	(a) 177.0	(b)	6.5

(a) Including accidents resulting in permanent disability.
(b) Included in accidents resulting in temporary disability.

The total accident rate for Austria shows, according to Table V, an uninterrupted increase for the whole period 1890 to 1907, though the year 1900 has the same rate as 1899. The fatal accidents compensated have practically remained stationary since 1899, while the non-fatal accidents compensated have, with the exception of the year 1903, shown an increase in each year over the preceding year. Table VI indicates that in the five-year period, 1900 to 1904, there is a tendency for the permanent disablements to diminish.

The annual reports of the Austrian accident insurance system show the rates for compensated accidents for the various industries in a form which is slightly different from the table just given; the data show first the total number of accidents reported, which includes fatal and non-fatal accidents and accidents causing disability of less than four weeks, as well as those causing death or disability of more than four weeks. The groups of industries are given in such detailed form that to present the tables for the period 1897 to 1907 would require more space than is available at present, while the detailed classification has made the basis of computation so small that the rates based on the total number of insured persons fluctuates widely from year to year. One group, the building and construction industries, however, shows such a marked variation from the general tendency that the rates are of interest. The following table shows this group and the total for all of the sixteen groups:*

* The data for the 16 groups will be found on pages 97 to 111 of the Twenty-fourth Annual Report of the United States Commissioner of Labor.

TABLE VIII.

NUMBER OF ACCIDENTS PER 10,000 FULL-TIME WORKERS, IN THE BUILDING INDUSTRIES AND IN ALL GROUPS OF INDUSTRIES, IN AUSTRIA, 1894–1907.

[Source: Amtliche Nachrichten betr. Unfall-und Krankenversicherung, 1898-1909.]

Industry Group and Year.	Number of Insured Full-time Workers.	Accidents per 10,000 Full-time Workers Insured.		
		Number Reported.	Number Compensated and Resulting in—	
			Disability of more than Four Weeks.	Death.
XIV (*a*). Building, Construction Operations, etc.:				
1894	84,946	799.0	218.2	19.7
1895	96,244	950.3	234.4	12.1
1896	115,731	873.6	233.3	12.3
1897	119,986	1,056.1	247.0	11.8
1898	135,488	1,044.6	242.2	13.0
1899	139,906	945.7	223.9	12.6
1900	131,483	915.5	225.6	11.8
1901	124,780	956.2	236.6	11.4
1902	134,018	1,027.0	254.7	11.0
1903	145,842	1,005.5	251.1	10.3
1904	180,730	978.7	245.2	12.4
1905	172,375	946.0	252.3	12.2
1906	161,849	830.9	237.0	11.2
1907	164,593	801.0	228.2	11.1
XIV (*b*). Building Trades:				
1894	25,245	746.3	267.4	19.8
1895	26,477	793.1	303.7	26.4
1896	29,358	814.7	298.0	26.9
1897	28,801	804.5	286.4	27.1
1898	33,007	853.5	269.0	20.0
1899	31,386	839.5	290.3	19.4
1900	28,634	865.7	311.5	19.9
1901	27,995	917.3	306.5	20.7
1902	28,656	921.6	347.9	15.4
1903	30,144	932.8	318.1	18.9
1904	32,841	965.2	322.4	23.8
1905	32,085	803.8	300.5	21.2
1906	35,556	790.3	298.4	7.2
1907	40,992	749.7	284.0	15.8
XIV (*c*). Trades Subsidiary to Building Trades:				
1894	7,330	612.6	165.1	16.4
1895	7,143	879.2	146.4	11.2
1896	8,943	903.3	218.0	19.0
1897	9,682	918.2	204.5	10.3
1898	11,108	919.2	211.6	14.4
1899	12,728	832.0	199.5	9.5
1900	14,524	906.1	212.1	13.5
1901	14,808	913.0	195.2	12.1
1902	15,834	919.5	222.3	4.4
1903	15,504	978.5	235.4	11.6
1904	16,642	978.9	222.5	9.0
1905	18,793	818.4	195.6	8.0
1906	24,070	637.3	194.0	5.0
1907	36,786	446.4	153.3	7.6

TABLE VIII—*Continued.*

Industry Group and Year.	Number of Insured Full-time Workers.	Accidents per 10,000 Full-time Workers Insured.		
		Number Reported.	Number Compensated and Resulting in—	
			Disability of more than Four Weeks.	Death.
XIV (*d*). Establishments for Cleaning, Maintenance, etc., of Buildings:				
1895	3,491	601.9	253.5	27.8
1896	3,481	588.6	212.0	23.4
1897	3,711	741.4	247.3	31.9
1898	3,819	580.3	171.9	11.4
1899	4,170	574.9	171.0	37.3
1900	4,492	285.0	102.4	17.8
1901	4,680	566.2	119.7	6.4
1902	4,933	316.2	103.4	8.1
1903	5,095	325.8	109.9	7.9
1904	5,097	306.1	102.0	13.7
1905	5,004	325.7	145.9	2.0
1906	5,400	348.1	111.1	9.3
1907	5,050	358.4	118.8	4.0
All Groups of Industries (Groups I to XVI):				
1894	989,987	406.7	120.0	6.8
1895	1,216,731	448.4	127.9	6.8
1896	1,283,433	503.8	137.3	7.2
1897	1,331,957	520.2	140.6	7.0
1898	1,395,710	538.5	143.3	7.0
1899	1,438,584	551.0	150.3	7.3
1900	1,362,350	550.7	150.7	6.8
1901	1,481,857	550.7	156.2	6.7
1902	1,483,293	566.4	164.6	6.1
1903	1,518,518	580.5	161.7	6.0
1904	1,609,208	619.8	165.2	6.4
1905	1,645,423	630.4	168.2	6.3
1906	1,726,824	631.9	175.9	6.8
1907	1,824,939	652.3	177.0	6.5

In general, it may be said that the building trades groups show a tendency to have a decreasing accident rate in the last five years of the period included in the preceding table. Practically no other group shows such a tendency. A careful search of the official reports discloses no mention of the cause for this variation. With this one exception therefore, it must be concluded that a stationary or diminishing accident rate has not yet been reached in Austria.

GREAT BRITAIN.

The increase in the number of industrial accidents in British industries in recent years had been so marked that on June 4, 1908, a motion was made in the House of Commons

"That this House is of opinion that the increase in fatal and non-fatal accidents in places under the Factory and Workshops Act is of such a character as to demand immediate attention, more particularly in so far as it bears upon the organization of the Factory Department of the Home Office."

The debate on this motion led to the appointment of a Departmental Committee to consider the question of the increase in reported accidents; the report of this committee, together with a large volume containing the testimony collected, is now available* and is the authority for the data given below.

The committee states that the rise in the number of reported accidents had been the cause of disquietude for some years; the number of reported accidents had risen from 79,020 in 1900 to 100,609 in 1905, while for the years 1905 to 1907 the figures were:

	Total.	Fatal.
1905	100,609	1,063
1906	111,904	1,116
1907	124,325	1,179

Before taking up the study of the accident data, it is necessary to explain briefly the peculiarities of the British figures. The Notice of Accidents Act of 1906 classifies accidents into two groups:—Class A (*i. e.*, accidents reportable both to the certifying surgeon and the inspector), accidents due to power driven machinery, hot liquid, explosions of gas or steam, or to electricity, which cause absence from work throughout one whole day; and Class B (*i. e.*, accidents reportable to inspectors only), accidents causing absence from work for more than seven days. The Class A accidents are those which are caused by some dangerous appliance and usually call for some administrative action (inspection of safety appliances, etc.), while the Class B accidents are all other accidents of a

*Great Britain. Home Office. Report of the Departmental Committee on Accidents in Places Under the Factory and Workshop Acts. London, 1911. 2 vols.

somewhat serious nature. The following table indicates that the Class A accidents in the last five years form about one third of the total number reported. The total reported accidents have been much higher in the five years 1905 to 1909, than in any preceding year, but during the last three years there has been in each year a decrease. The number of all reported accidents for the period 1890 to 1909 is as follows:

TABLE VIII.

ALL REPORTED ACCIDENTS IN GREAT BRITAIN, 1890-1909.

[Source:- Report of the Departmental Committee on Accidents, 1911, p. 3.]

Year.	Reported to							Total.
	Certifying Surgeons and Inspectors.						Inspectors only.	
	Factories and Workshops.		Other Premises (b).		Total.			
	Non-fatal and Fatal.	Fatal.	Non-fatal and Fatal.	Fatal.	Non-fatal and Fatal.	Fatal.		
1890 (a)	8,211	484	—	—	8,211	484	—	8,211
1891 (a)	8,527	420	—	—	8,527	420	—	8,527
1892 (a)	8,643	420	—	—	8,643	426	—	8,643
1893 (a)	8,186	422	—	—	8,186	422	—	8,186
1894 (a)	9,749	448	—	—	9,749	448	—	9,749
1895	10,466	455	—	—	10,466	455	—	10,466
1896	14,164	525	269	71	14,433	596	19,124	33,557
1897	15,446	516	539	142	15,985	658	24,489	40,474
1898	18,493	577	734	190	19,227	727	38,335	57,562
1899	21,556	681	1,215	180	22,771	871	47,989	70,760
1900	25,970	813	1,734	282	27,704	1,045	51,316	79,020
1901	27,215	782	2,052	253	29,267	1,035	54,493	83,760
1902	27,748	850	2,328	360	30,076	1,110	60,279	90,355
1903	28,122	748	2,387	299	30,509	1,047	62,091	92,600
1904	27,574	727	2,387	291	29,961	1,018	63,007	92,969
1905	29,538	775	2,464	288	32,002	1,063	68,607	100,609
1906	32,902	799	2,794	317	35,696	1,116	76,208	111,904
1907	40,310	850	3,168	329	43,478	1,179	80,847	124,325
1908	39,643	767	2,258	275	41,901	1,042	80,253	121,112
1909	37,883	700	2,083	246	39,966	946	77,534	117,500

Unfortunately the British figures supply information on which an accident rate can be computed only to a limited degree. Under the provisions of the Factory Act, the total number of persons employed in a factory must be reported every three years. The report of the committee states "We understand that these returns are not very reliable. In a

(a) Twelve months ended October 31st.

(b) Docks, buildings, and other premises added by the Act of 1895.

large proportion of cases occupiers neglect to fill up the return when the form is sent to them. In the case of textile factories a second demand is made; as regards other factories the . . . department is unable . . . to do this. When no return is sent from a factory and the figures of a previous return are available, these figures are used. As regards docks, warehouses, and building operations, there are no returns of employment under the factory act." With this reservation as to the accuracy of the figures, the following table shows the accident rate per 1,000 persons employed in the textile and in certain non-textile industries:

TABLE IX.

RATES PER 1,000 EMPLOYED OF ALL ACCIDENTS IN CERTAIN FACTORY INDUSTRIES, 1898, 1901, AND 1904 IN GREAT BRITAIN.

[Source: Report of Departmental Committee on Accidents, 1911, p. 5.]

Industry.	1898.	1901.	1904.
Textile	5.0	6.8	6.4
Cotton	6.1	8.1	7.4
Wool, worsted, shoddy	4.8	6.1	6.0
Non-Textile	15.5	20.9	23.8
Metals	21.1	32.3	40.9
Extraction	22.0	34.5	48.1
Founding and conversion	21.2	35.9	42.2
Machines, appliances, conveyances, tools	29.7	38.8	42.1
Shipbuilding	52.4	72.4	76.7
Wood, etc	14.9	19.2	25.6
Paper, etc	6.2	7.5	8.3
Laundries	(a)	5.8	5.3

The textile factories show a slight tendency to have a lower rate in 1904 as compared with 1901; all of the non-textile factories show a higher rate in 1904 than in 1901 and 1898, while the laundries have a lower reported rate in 1904 than in 1901.

The rates for accidents reported because they were occasioned by some dangerous appliance (Class A accidents) and designated as those reported to the certifying surgeons, are as follows:

(a) Not reported.

TABLE X.

RATES PER 1,000 EMPLOYED OF ACCIDENTS REPORTED TO CERTIFYING SURGEONS IN CERTAIN FACTORY INDUSTRIES IN 1898, 1901, 1904, AND 1907 IN GREAT BRITAIN.

[Source: Report of Departmental Committee on Accidents, 1911, p. 6.]

Industry.	1898.	1901.	1904.	1907.
Textile	3.7	4.6	4.0	6.0
Cotton	4.5	5.3	4.4	6.8
Wool, worsted, shoddy	3.7	4.4	4.2	5.7
Non-textile	5.3	7.2	7.6	9.9
Metals	7.3	12.3	14.7	21.6
Extraction	7.7	11.5	14.7	22.7
Founding and conversion	6.9	13.7	15.1	23.7
Machines, appliances, conveyances, tools	7.8	9.6	10.2	13.3
Shipbuilding	5.8	8.0	8.3	11.9
Wood, etc	10.2	12.7	16.9	21.7
Paper, etc,	4.0	5.0	5.0	5.8
Laundries	?	4.7	4.2	4.2

With the exception of the laundries, there is an increase, and in some cases a conspicuous increase, in the rates in 1907 of the accidents reported as compared with the years preceding.

The information as to the total number of persons employed is given for 1907 only in connection with the accidents caused by a dangerous appliance (Class A accidents) and is as follows:

TABLE XI.

RATES PER 1,000 EMPLOYED OF ACCIDENTS REPORTED TO CERTIFYING SURGEONS IN CERTAIN FACTORY INDUSTRIES IN 1898, 1901, 1904, AND 1907 IN GREAT BRITAIN.

[Source: Report of the Departmental Committee on Accidents, 1911, p. 6.]

Industry.	1898.	1901.	1904.	1907.
Textile	3.7	4.6	4.0	6.0
Cotton	4.5	5.3	4.4	6.8
Wool, worsted, shoddy	3.7	4.4	4.2	5.7
Non-textile	5.3	7.2	7.6	9.9
Metals	7.3	12.3	14.7	21.6
Extraction	7.7	11.5	14.7	22.7
Founding and conversion	6.9	13.7	15.1	23.7
Machines, appliances, conveyances, tools	7.8	9.6	10.2	13.3
Shipbuilding	5.8	8.0	8.3	11.9
Wood, etc	10.2	12.7	16.9	21.7
Paper, etc	4.0	5.0	5.0	5.8
Laundries	(a)	4.7	4.2	4.2

Except for the laundries, the rate of reported accidents for all the industries in the preceding table is higher in 1907 than in 1904.

(a) Not reported.

It has been the general experience that with the enactment of compensation laws, an immediate increase in the number of reported accidents takes place. The reason is obvious; unless the injured workman files a claim, he receives no benefits under the law, and as it is often impossible to know what will be the result of an injury, it is clearly to his advantage to report even trivial injuries, while if the employer carries some form of accident insurance, it is likewise important for him to provide the basis of a claim in all cases. The returns made under the workmen's compensation act of 1906 indicate that this has taken place in Great Britain.

The act of 1906 provides that employers in such industries as the secretary of state may by order direct shall make returns "of the number of injuries in respect of which compensation has been paid, the amount of compensation and such other particulars as may be required." The following table is compiled from these returns:

TABLE XII.

SHOWING NUMBER OF INJURIES COMPENSATED UNDER THE WORKMEN'S COMPENSATION ACT IN CERTAIN INDUSTRIES IN 1908 AND 1909 IN GREAT BRITAIN.

[Source: Report of the Departmental Committee on Accidents, 1911, p. 7.]

Industry.	Average Number of Persons Employed.		Number of Accidents Compensated.		Proportion per 1,000 Persons Employed.	
	1908.	1909.	1908.	1909.	1908.	1909.
Shipping	235,001	236,000	6,248	7,067	26.6	29.9
Factories —						
Cotton	549,666	549,856	7,963	9,201	14.5	16.7
Wool	320,656	266,447	2,000	2,333	6.2	8.8
Other textiles	283,169	274,778	1,892	2,057	6.7	7.5
Wood	228,875	115,213	5,323	5,148	23.3	44.7
Metals	431,447	343,275	24,668	23,109	57.2	67.3
Engine Building	251,403	191,033	18,695	12,435	74.4	65.1
Other Metals	966,899	728,256	32,589	24,656	33.7	33.9
Paper, etc	342,813	308,365	3,326	3,296	9.7	10.6
China	53,875	69,146	1,101	1,031	20.4	14.9
Miscellaneous	2,069,186	1,739,486	39,751	40,612	19.2	23.3
Total Factories	5,497,988	4,585,855	137,308	123,878	25.0	27.0
Docks	67,929	130,886	10,747	11,790	158.2	90.1
Mines	1,047,862	984,994	138,923	156,254	132.6	158.6
Quarries	85,475	88,880	5,372	5,619	62.8	63.2
Constructional Work	127,106	92,298	6,924	7,350	54.5	79.6
Railways	451,392	437,752	21,149	20,649	46.8	47.2
Grand total	7,512,753	6,566,622	326,671	332,607	43.5	50.7

It may be noted that the number of accidents compensated is higher in 1908 (see Table XII) than the number of persons reported as injured in 1907 (see Table VIII). The number of persons compensated per 1,000 employees is also higher in 1909 than in 1908, though for three of the groups, engine-building, china factories, and docks, the reverse is true.

The preceding tables indicate in the first place, that there has been a tendency for the number of accidents reported to increase steadily up to the year 1907 and that there was a decrease in the reported accidents in 1908 and 1909; in the second place that the number of accidents compensated in 1908 was higher than the number of accidents reported in 1907; and in the third place that the compensated accidents were more numerous in 1909 than in 1908. The figures therefore show a general tendency to an increase in the number of accidents from 1890 to 1909.

As to whether this increase in the accident rate represents an actual increase in the number of accidents or is merely the result of more careful reporting, the committee comes to the conclusion that the latter is the principal cause. The reasons given are the following:

First, while the total number of accidents reported has tended to increase, the number of fatal and serious accidents which are always more carefully reported than the minor accidents, has tended to remain stationary. "It is possible that minor accidents may have increased at a greater rate than serious accidents and in the present state of our knowledge it is impossible to speak with certainty on the point. No reason, however, for so large a difference between the rates of increase in serious and in minor accidents has been given and the committee infer that most of the difference is due to the fuller reporting of minor accidents." Second, the factory inspectors all stated that reporting had been defective in the past and that improvements in this respect had been instituted. Third, the compensation act of 1906 had led to more complete reporting. Fourth, the amendment of the accident reporting law in 1906 had also led to more complete reporting. The general conclusion of the committee (page 21) is that "the increase of reported acci-

dents up to 1907 was due almost entirely to increased reporting."

The committee also takes up the question as to whether industries as at present conducted have a greater degree of risk—are more hazardous—than formerly. The elements considered in the report are the following:

First, increased speed and pressure of work—"on the whole, we are of opinion that there is increased speed and pressure in a large number of industries, and this is probably a cause operating to produce an appreciable increase in the accident risk."

Second, increased use of machinery,—"considered as an isolated cause, is one of the causes operating to increase the accident risk. The counter operation, however, due to improvements in machines and in guards must not be forgotten."

Third,—the workmen's compensation act,—"the committee conclude that the workmen's compensation act has reduced the accident risk by directing the attention of employers to the occurrence of accidents and the importance of preventing them, but has led to some increase in the number of reported accidents. . . ."

Fourth, improvements in guarding machinery,—"an appreciable decrease in the accident risk has occurred as a result of improvement in the guarding of machinery."

Fifth, casual or intermittent labor—"we have no evidence that this is a cause of increased accident risk."

Sixth, unskilled labor—"generally . . . we have little evidence of an increase in the use of unskilled labor on dangerous processes except as regards the employment of young persons. . . ."

Seventh, employment of young persons—"so far as the employment of young persons has increased, the risk which naturally accompanies the employment of immature workers has also increased, but the committee do not think that this cause accounts for any large proportion of the total increase in the accident risk."

Eighth, blood poisoning—"there is evidence of an increase of cases of incapacitation from this cause, for which increase no satisfactory reason has been suggested to us."

The general conclusion of the committee is that in British industries the accident risk for the ten years 1897 to 1907 has probably remained "almost constant," and that any increase due to the greater use of machinery and greater pressure on the workmen has been counteracted by improved inspection and the greater care on the part of the employers resulting from the provisions of the workmen's compensation act. The committee asserts that "There has been little, if any, increase in the accident risk during recent years."

General Conclusion.

In Germany, Austria, and Great Britain the serious accidents, namely those causing death or permanent disablement, show a tendency to decrease. In Germany and Austria, the accidents which cause disablements from which the workman eventually recovers, show a tendency to increase, there being no information on this point for Great Britain. In Germany there has been an elaborate, persistent campaign for at least a decade for the purpose of reducing the accident risk and in this period the number of accidents of the type which may be called "minor," has steadily increased. The progress in the movement for reducing the risk of industry, therefore, has resulted in distinctly reducing the risk of death or permanent disablement, but has not yet diminished the risk of temporary disablement.

PROCEEDINGS OF THE SEVENTY-THIRD ANNUAL MEETING OF THE AMERICAN STATISTICAL ASSOCIATION, WASHINGTON, D. C., DECEMBER 28–29, 1911.

The seventy-third annual meeting of the American Statistical Association was held in Washington, D. C., December 28–29, 1911. Several other associations held their annual meetings at the same time and place. The following program was carried out with some slight changes:

PROGRAM.

THURSDAY, *December* 28, 9 a. m.

Introductory Address:
Frederick L. Hoffman, President of the American Statistical Association.

Forecasting Business conditions by a Study of Statistics:
Roger W. Babson, Economic Engineer, Wellesley Hills, Mass.

Discussion:
John Franklin Crowell of the *Wall Street Journal.*

THURSDAY, *December* 28, 8 p. m.

Joint Meeting with the American Economic Association,
Presiding Officer, Dr. E. Dana Durand, Director of the Census.

Rural Conditions in the South:
John L. Coulter, Bureau of the Census, Washington, D. C.

Discussion:
Alfred Holt Stone, Dunleith, Miss.
Dr. H. B. Frissell, Principal, Hampton Institute.

The Decline of the Rural Population of the United States:
Prof. B. H. Hibbard, Iowa State Agricultural College.

Discussion:
Dr. Alexander E. Cance, Massachusetts Agricultural College.
Prof. H. C. Taylor, University of Wisconsin.
Prof. George N. Lauman, Cornell University.

FRIDAY, *December* 29, 9 a. m.

Annual Business Meeting of the American Statistical Association.

FRIDAY, *December* 29, 10 a. m.

Joint Meeting with the American Association for Labor Legislation.
Presiding Officer, Dr. Charles P. Neill, Commissioner, United States Bureau of Labor.

Uniform Reporting of Industrial Injuries:
Report of Special Committee on Standard Schedules.
Leonard W. Hatch, Chairman, Chief Statistician, New York State Department of Labor
Lucian W. Chaney, Special Agent, United States Bureau of Labor.
John R. Commons, Member, Wisconsin State Industrial Commission.
Don D. Lescohier, Expert, Minnesota State Bureau of Labor.
John B. Andrews, Secretary, American Association for Labor Legislation.
Discussion:
Frederick L. Hoffman, President, American Statistical Association.
David Van Schaack, Aetna Life Insurance Company, Hartford, Conn.
E. L. Pugh, Interstate Commerce Commission.
Carroll W. Doten, Chief Investigator, Massachusetts Commission on Compensation for Industrial Accidents.
C. L. Close, Secretary, Committee of Safety, United States Steel Corporation.
W. E. Stubbs, Secretary, New Jersey Employers' Liability Commission.

FRIDAY, *December* 29, 8.15 p. m.
The Naturalization of Immigrants:
A Statistical Review.
Frederick C. Croxton, Statistician of the United States Immigration Commission.
The Effect of Immigration on Wages and Standard of Living:
W. Jett Lauck, Statistical Expert in Charge of the Investigation.
Discussion:
Dr. Joseph A. Hill, Bureau of the Census.
Dr. I. A. Hourwich, Bureau of the Census.

Minutes.

The meeting was called to order at 9.15 a. m. by President Frederick L. Hoffman.

The reports of officers were then called for.

Secretary's Report.

Mr. President and Members of the Association:

I have the following to report in regard to the present condition of the Association and the work accomplished during the past year:

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The reports of officers were then called for.

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Mr. President and Members of the Association:

I have the following to report in regard to the present condition of the Association and the work accomplished during the past year:

Membership December 30, 1910, date of last annual meeting		590
New members added		68
Deaths during the year	9	
Resignations	26	
Total deductions		35
Present membership		623
Net gain		33
Beside members we have:		
Subscribers (mostly libraries)		161
Domestic Exchanges		36
Foreign Exchanges		114
Total mailing list		934

The following members have died during the year: Dr. Henry P. Bowditch, George W. Curtis, Prof. Edw. M. Hitchcock, Mrs. Lillian Hollister, Gen. Sam'l C. Lawrence, Dr. Emile Levasseur, Dr. Julius Pohlman, Gen. Joseph Smith, and Prof. D. Collin Wells.

Four numbers of the quarterly publications have been issued during the year, containing an aggregate of 484 pages, or an average of 121 pages per number. This is a somewhat larger publication than the Association can afford to issue regularly unless its income is increased in some way.

Two quarterly meetings have been held during the past year:

April 14, at 8 p. m., at the Cosmos Club, Washington, D. C., a brief introductory address was made by President Hoffman, and a paper was read by Dr. Roland P. Falkner, Assistant Director of the Census, on "Some Recent Developments in School Statistics." Following the discussion of the paper a light buffet luncheon was served. Doctor Falkner's paper was published in the June number of the Quarterly Publications.

November 10, at 8.15 p. m., at the Cosmos Club, Washington, D. C., Vice-President E. Dana Durand, Director of the Census, presided and Prof. Frank H. Dixon spoke on "Recent Developments in the Relations between the Railways and

the Government." Luncheon was served at the close of the meeting.

At the April meeting Mr. Emil P. Secker of Washington, D. C., was made assistant secretary of the Association, and it was voted to hold at least two quarterly meetings a year in that city.

I desire in closing to express my appreciation of the splendid coöperation of Mr. Secker and Dr. Henry J. Harris in the work of preparing for these meetings and in making the local arrangements for the annual meeting.

Respectfully submitted,

CARROLL W. DOTEN,
Secretary.

On motion it was voted to accept the report of the secretary and to make it a part of the published proceedings of the meeting.

TREASURER'S REPORT.

January 1, 1911, to December 22, 1911.

RECEIPTS.

Membership Dues	$1,064.40	
Sales and Subscriptions	625.00	
Dividends and Interest	113.82	
Balance on hand January 1, 1909	444.82	
		$2,248.04

EXPENDITURES.

Printing	$1,449.76	
Postage	85.75	
Salaries and clerical service	310.45	
Expenses	11.68	
	$1,857.64	
Balance on hand, December 22, 1911	390.40	
		$2,248.04

ASSETS.

17 shares B. & A. R. R. Stock @ 220 ..... $3,740.00

S. B. PEARMAIN,
Treasurer.

AUDITORS' REPORT.

We have this day audited the accounts of Mr. S. B. Pearmain, treasurer of the American Statistical Association, for the year 1911 to date.

We find the books correctly kept; all disbursements duly vouched, and receipts accounted for. The treasurer is charged with and has in his possession seventeen (17) shares of Boston and Albany Railroad stock, belonging to the Association. We have checked the certificates.

The receipts since January 1, 1911, have been		$1,803.22, *i.e.*,
Dividends and Interest	$113.82	
Sales of Proceedings	625.00	
Dues for Life Members	20.00	
Back Dues	110.00	
Dues for 1911	922.40	
Dues for 1912	12.00	
		$1,803.22
Disbursements amount to $1,857.64, *i. e.*,		
For Printing	$1,449.76	
For Postage	85.75	
For Salaries	310.46	
For Miscellaneous	11.68	
		$1,857.64
Balance in bank January 1, 1911		443.82
Returned check		1.00
		444.82
Receipts as above		$1,803.22
Total receipts		$2,248.04
Disbursements		1,857.64
Balance on hand December 22, 1911		$390.40

Respectfully submitted,

EDWARD M. HARTWELL,
ROGER W. BABSON,
Auditing Committee.

On motion both reports were accepted and ordered on file.

An informal oral report was made by Prof. Walter F. Willcox for the Committee on Constitution and By-Laws.

It was moved and carried that the president nominate a committee of five members to be elected by the meeting to carry the provisions of Article IV of the Constitution into effect. The president nominated the following members to constitute this committee: Walter F. Willcox, E. Dana Durand, Charles P. Neill, William B. Bailey, Frederick L. Hoffman. It was unanimously voted that the secretary should cast one ballot for the nominees, and they were duly declared elected.

The Committee on Nominations, consisting of John Koren, Frank H. Dixon, Henry J. Harris, reported the following list of officers for the ensuing year:

President, Walter F. Willcox; vice-presidents, Henry W. Farnam, Franklin MacVeagh, E. Dana Durand, Charles P. Neill, Henry B. Gardner; librarian, Horace G. Wadlin; treasurer, S. B. Pearmain; secretary, Carroll W. Doten; assistant secretary, Emil P. Secker; counsellors, Frank H. Dixon, Henry J. Harris, Henry R. Seager; editor, John Koren; associate editors, William B. Bailey, Joseph A. Hill, Frederick S. Crum, Allyn A. Young; committee on finance, Edwin W. DeLeon, Miles M. Dawson, S. B. Pearmain; committee on library, Charles F. Gettemy, Roger W. Babson, F. Spencer Baldwin.

As there were no other nominations it was moved and seconded that the secretary cast one ballot for the entire list of nominators. This motion was unanimously adopted and the officers were declared elected.

It was voted on motion that the next annual meeting of the Association be held in Boston in connection with the meetings of the several associations accustomed to meet together during the holiday period; that the arrangements for this meeting be placed in charge of a committee consisting of the president and secretary, and such other members as the president might wish to appoint. The president appointed the following members to serve on this committee: John Koren, S. B. Pearmain, and William S. Rossiter.

At an adourned session of this meeting called to order at 10.45 p. m., it was moved that the president appoint a committee of three to study ways and means of securing an increase in the endowment fund of the Association.

The following resolutions were unanimously adopted:

RESOLUTIONS.

Resolved, That the American Statistical Association assembled in its seventy-third annual meeting, hereby records its profound conviction that reports of successive federal censuses are indispensable to the careful study of American economic and social conditions and changes, and have been so ever since a former president of this Association, Francis A. Walker, thoroughly reconstructed this branch of governmental work at the Census of 1880.

Resolved, That this Association sincerely hopes that the tabulations and publications of the Thirteenth Census may be no less extensive in scope, reliable in content, and prompt in publication than were the Censuses of 1880, 1890, and 1900.

Resolved, That this Association firmly believes that the appropriation of sums adequate to secure this result, particularly now that most of the preliminary work has been done, would be a wise and economical expenditure of public funds.

At the concluding session of its seventy-third annual meeting held at Washington, December 28–29, 1911, the following resolutions were adopted:

RESOLUTIONS.

Resolved, That the American Statistical Association express its sincere gratitude for the splendid hospitality of the officials and citizens, and for the coöperation of the local press of Washington, which have rendered this the pleasantest and most profitable meeting in the history of the Association.

Resolved, That the Association is especially sensible of its indebtedness to the Secretary of the Treasury and Mrs. MacVeagh, the members of the committee on local arrange-

ments, the president and members of the Chamber of Commerce, the president and faculty of George Washington University, the officials of the several departments and bureaus of the government, and to the Cosmos, Commercial, and University clubs for the courtesies and privileges so generously extended to its members.

Resolved, That the secretary of the Association be instructed to record these resolutions in the minutes of the meeting and to transmit copies of them to the persons and organizations herein mentioned.

CARROLL W. DOTEN,
Secretary.

ASCERTAINING AND FORECASTING BUSINESS CONDITIONS BY THE STUDY OF STATISTICS.*

By Roger W. Babson, *President of the Babson Statistical Organization.*

In talking with bankers, manufacturers, and merchants in various sections of the country, I find that the great majority of these men entirely ignore two very important facts, *viz.:*

First, they feel that their business depends simply upon conditions in the territory in which they operate: for example, a large local jeweller in Cleveland states that he sells only in Cleveland, and thus he is interested only in conditions in Cleveland; while the manager of a shoe jobbing house in Boston endeavors to convince me that he is interested only in New England conditions. Therefore, these men believe that they have little use for statistics. They are, however, making a great mistake.

Secondly, the great majority of our manufacturers and merchants feel that they are interested in the progress of only their own line of goods. The majority of such men are careful readers of their own trade papers, but they spurn the idea of endeavoring to keep in touch with the conditions in other lines, or to study statistics of a general nature. This also is a distinct mistake. It is largely owing to these reasons that the work of statisticians is so little appreciated by the average business man today.

However, those of us who today are engaged in this work are teaching bankers, manufacturers, and merchants the practical importance of statistics, *vis.:* (1) that each business, even although apparently local, is dependent on the business of the entire country; and (2) that each business is dependent on the condition of business in other lines. Therefore, I feel that the first and greatest need of the business man today is that he should realize this fact: that *his business in his own small locality is dependent upon conditions throughout the entire country and the business in his own distinct line is dependent*

*Paper read at the annual meeting of the American Statistical Association, Washington, D. C., December 29, 1911.

upon conditions in every other line. When the business men of America study statistics from this point of view, the United States will make a great advance in banking, manufacturing, and distribution. Moreover, it is due very largely to the fact that the average business man does *not* recognize these fundamental principles that he is groping in the dark and looking toward a Sherman Act, a Monetary Commission, some Tariff Readjustment, a Ship-Subsidy, or something else of an artificial nature to solve his problems. When our business men appreciate the importance of fundamental statistics, most of our national problems will be solved; but not until then.

How the Merchants can Keep in Touch with Business Conditions Throughout the Country.

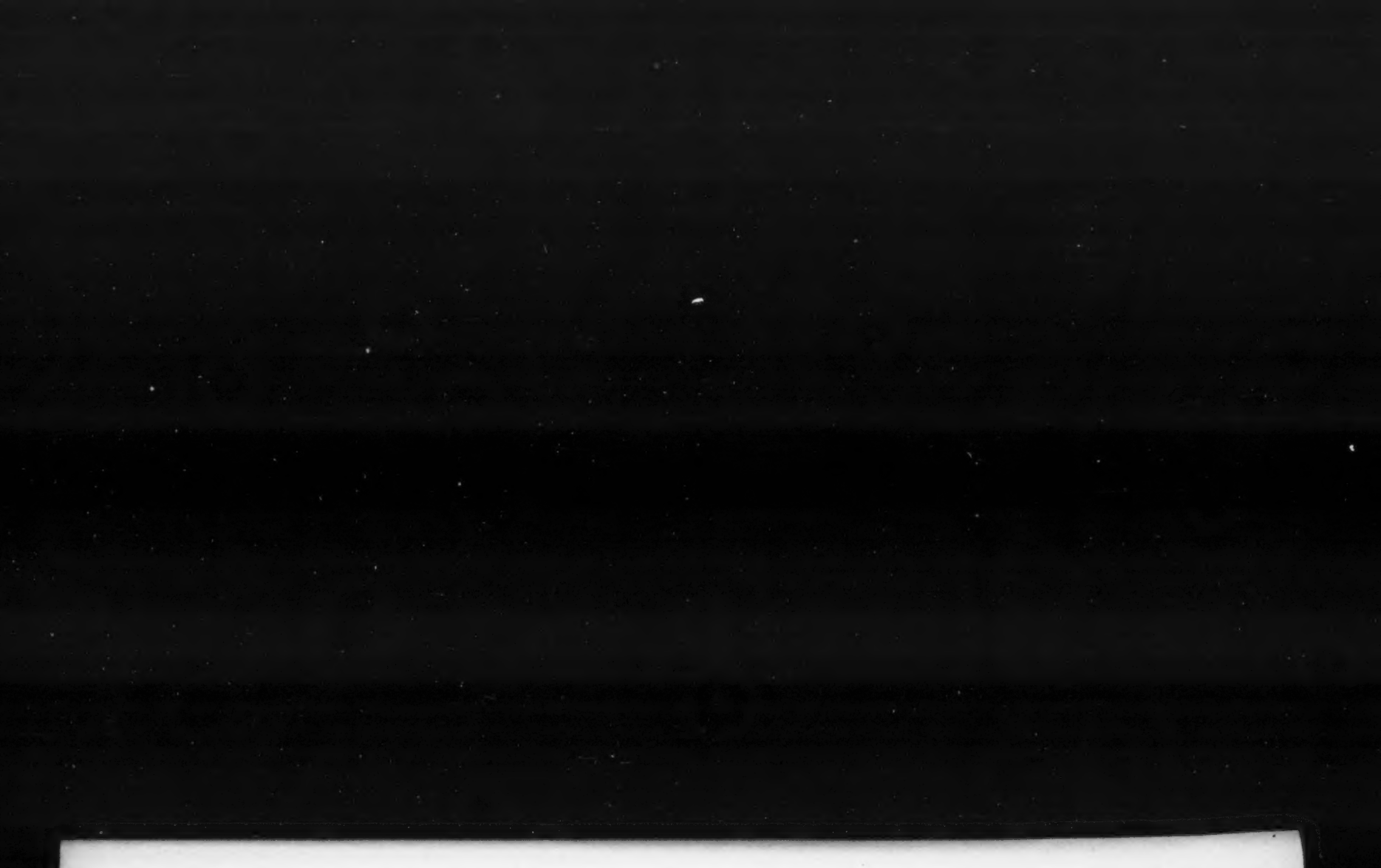
I have said that the business man should first keep in touch with conditions all over the country, even although his own trade is localized to one community. The reason for this is very obvious. Assume that some one in this audience is at the head of a large department store in Pittsburg. All will readily admit that the trade of this department store depends very largely upon the condition of business in Pittsburg and that, if the buyers of this store could know what conditions will be in Pittsburg during the coming year, it would be of distinct advantage to them. It will also be granted that the conditions in Pittsburg during the coming year depend upon the condition of the steel, the iron, the cement, and the other leading industries centered in Pittsburg. The condition of these industries, however, depends not on the local Pittsburg conditions, *but on conditions throughout the entire country.*

Therefore, the trade of this local department store, which sells only to Pittsburg people, depends upon general as well as local conditions. The conditions in the Northwest and the Southwest determine whether or not the railroads in those distant territories will be double tracked, necessitating the ordering of steel rails from Pittsburg. The crops of the great Central West affect the business of its great cities, which in turn settles the question as to whether or not new structures

will be erected during the coming year, which in turn influences local Pittsburg conditions; and so it is with all cities throughout the country. The prosperity of Pittsburg is dependent on the prosperity of the country as a whole; tell me what the conditions *outside* of Pittsburg will be, and I will tell you what the conditions *in* Pittsburg will be. To ascertain these conditions, resort must be had to statistics. Thus the statistician has a great opportunity and a real duty to perform.

Increasing Sales.

For some years my own organization has been supplying detailed reports from the hundred or more leading cities of the country, stating as briefly as possible whether business is good or poor, improving or declining, or at a standstill. Such reports are now revised by our statistical department and mailed to subscribers every two weeks, thus showing manufacturers and merchants the actual business conditions in all sections of the country. We find, however, that even these do not fully meet the needs of the busy merchant nor those even of the sales manager and the manager of the credit department. Therefore, two maps of the United States are prepared and issued every two weeks, both of which are usually mailed to the president or general manager, personally, of the corporation which employs us. One of these maps is what is known as the "Optimistic Map," showing where business is best, where failures are fewest, where the crops are the most promising, and where various other conditions are such as to attract trade. If a corporation or firm does other than a local business, the president turns over this map to his sales manager and advertising man so that the routing of the salesman, the distribution of the advertising, and all other work connected with the extending of sales may be centered on that part of the country where the greatest opportunity exists. In other words, such a map is primarily to afford the head of the business a bird's eye view of the conditions throughout the entire country which are shown more in detail in the reports above referred to. In short, our statisticians are simply supplying suppressed news months



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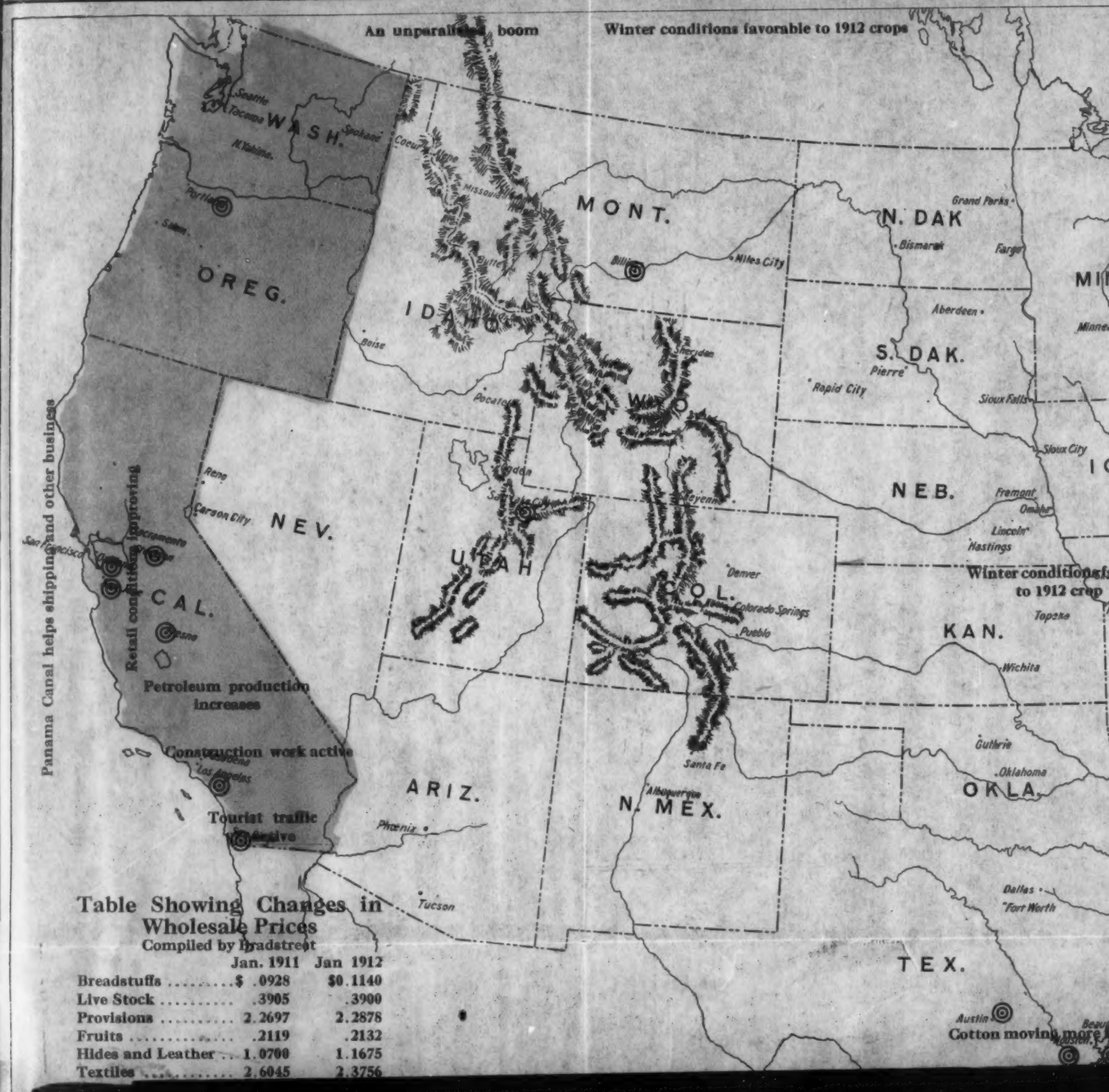


Table Showing Changes in Wholesale Prices

Compiled by Bradstreet

	Jan. 1911	Jan 1912
Breadstuffs	$ .0928	$0.1140
Live Stock	.3905	.3900
Provisions	2.2697	2.2878
Fruits	.2119	.2132
Hides and Leather	1.0700	1.1675
Textiles	2.6045	2.3756

Wholesale trade improving
MINN.
Trade fair
Collections fair
WIS.
MICH.
Moving grains to market helps railroads
Automobile trade helps business
Collections good
IOWA
IND.
OHIO
ILL.
Money in good supply
Wool market fair
N.Y.
PENN.
ME.
VT.
N.H.
MASS.
CONN.
R.I.
MO.
KY.
W.VA.
VA.
N.C.
TENN.
S.C
ARK.
Large cotton crop should help railroads
MISS.
ALA.
GA.
FLA.
Rice and sugar in La. offset low-priced cotton
more freely
BABSON'S MAP
OF THE
UNITED STATES
FOR
MERCHANTS AND BANKERS
Published in Connection with
BABSON'S REPORTS
ON

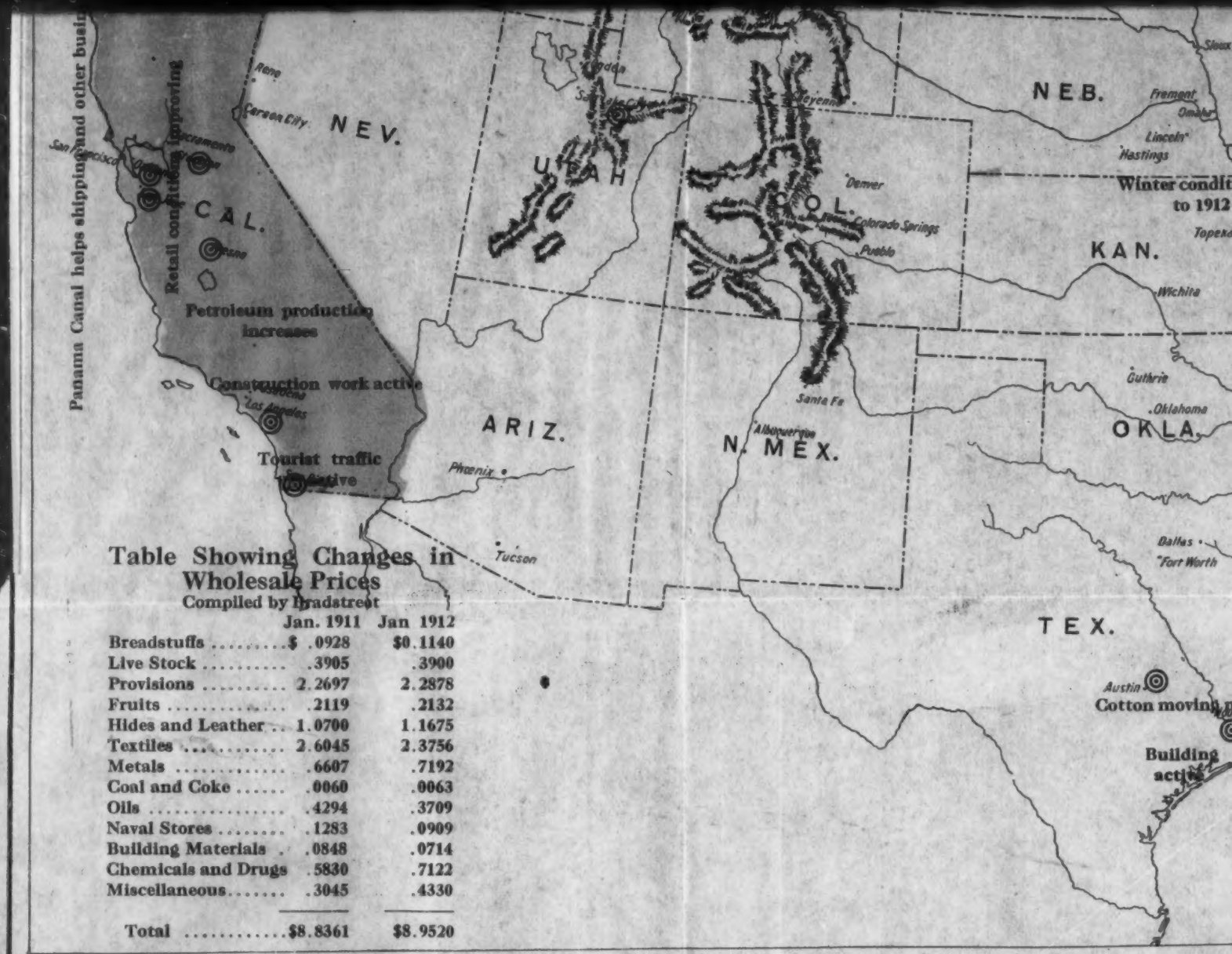


Table Showing Changes in Wholesale Prices

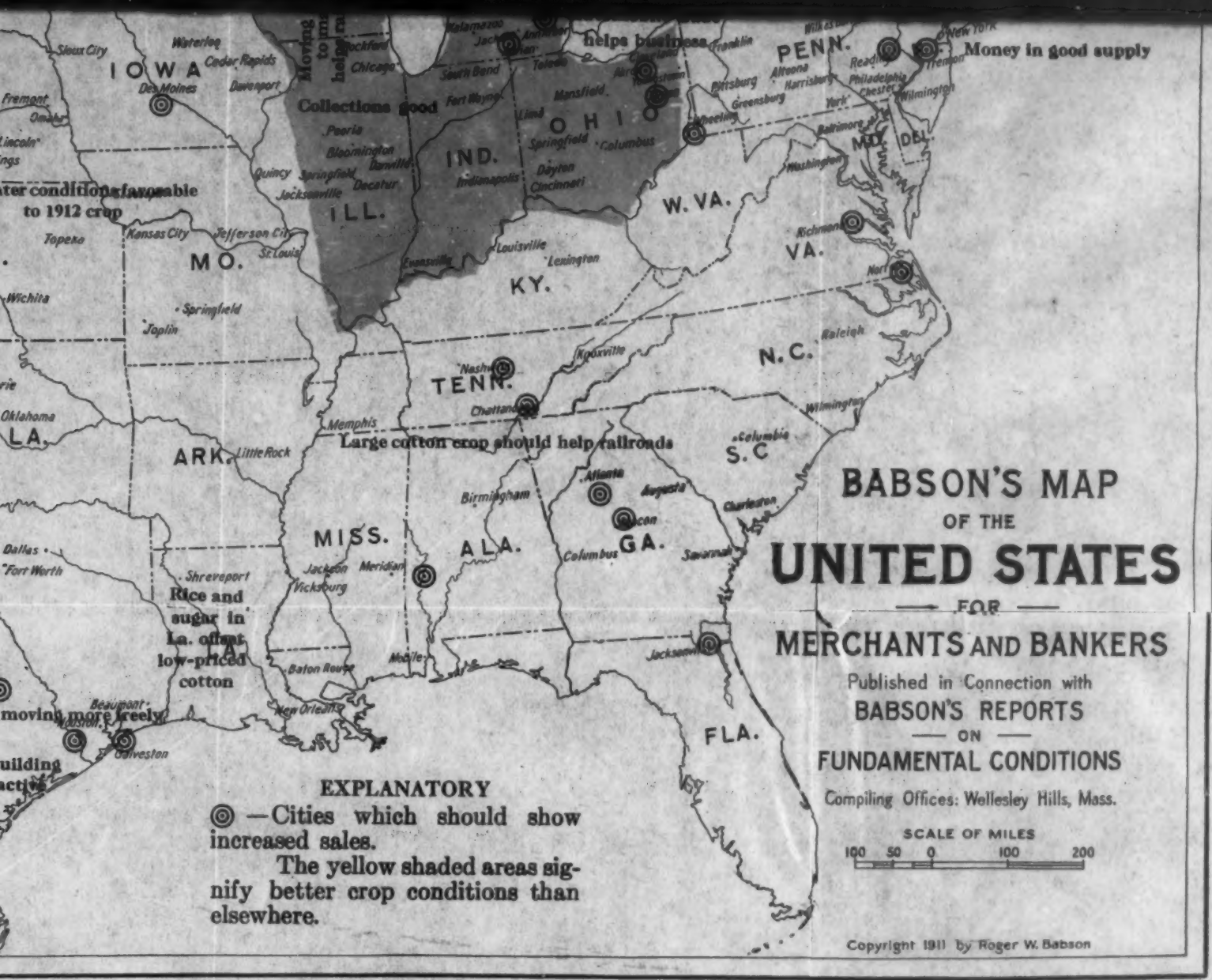
Compiled by Bradstreet

	Jan. 1911	Jan 1912
Breadstuffs	$ .0928	$0.1140
Live Stock	.3905	.3900
Provisions	2.2697	2.2878
Fruits	.2119	.2132
Hides and Leather	1.0700	1.1675
Textiles	2.6045	2.3756
Metals	.6607	.7192
Coal and Coke	.0060	.0063
Oils	.4294	.3709
Naval Stores	.1283	.0909
Building Materials	.0848	.0714
Chemicals and Drugs	.5830	.7122
Miscellaneous	.3045	.4330
Total	$8.8361	$8.9520

NOTE

Of one hundred and forty leading cities in the United States, the following thirty-nine report a distinct increase in business at the present time compared with last year. The cities capitalized should offer especial opportunities for increased business.

AKRON
Albany
Atlanta
Austin
BILLINGS
Canton
Chattanooga
Des Moines
Detroit
DULUTH
Erie
Fresno
GALVESTON
Grand Rapids
Hartford
Holyoke
HOUSTON
JACKSONVILLE, FLA.
Jackson, Mich.
LOS ANGELES
MACON
Meridian
NASHVILLE
Norfolk
Oakland
Portland, Ore.
Quincy, Ill.
Reading, Pa.
Richmond
Rochester
Saginaw
SAN DIEGO
SAN JOSE
Salt Lake City
Springfield, Mass.
STOCKTON
Trenton
Wheeling
Worcester



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BUSINESS OPPORTUNITIES

February 1, 1912.

The January trade has been disappointing, but there is fair activity throughout the shaded areas. Staple lines should offer the best opportunities. Sales managers should find business better on the southern Pacific Coast than elsewhere.

before it appears in the public press and magazines (see Exhibit A).

Regulating Credits.

Supplementing this map, another is prepared and sent to the head of the corporation employing us, showing the dark side of business. This may be called the "Pessimistic Map." It shows where business is poor, where the crops are uncertain, where failures are on the increase, and where credit conditions should be especially watched. Here again, if the corporation does other than a local business, the president can make still further use of this map by turning it over to his credit department, enabling this department to avoid the unfair and harmful system of "shutting down" on everybody and all sections of the country in the same proportion. Instead, the credit department may contract credits in one part of the country and possibly expand them in another section in a common sense and legitimate manner.

Watching Conditions in Other Lines.

In the same way, our statistics are used to keep business men informed as to conditions in other lines than their own. "Failures," for instance, are not only given in total, but are sub-divided into various divisions, such as: iron, machinery and tools; woolens, carpets, and knit goods; cottons, lace, and hosiery; lumber; clothing and millinery; chemicals and drugs; paints and oils; milling and bakers; leather, shoes, and harness; liquors and tobacco; glass, earthenware, and bricks. Also on these maps, different trades are referred to, such as: groceries; meats and fish; hotels and restaurants; clothing and furnishing; dry goods and carpets; shoes, rubbers, and trunks; furniture and crockery; hardware, stoves, and tools; chemicals and drugs; paints and oils; jewelry and clocks; books and papers; etc.

But, in order to keep themselves informed as to general conditions, some manufacturers and merchants prefer to receive, weekly, certain statistics on a sheet like the annexed: (see Exhibit B). Here are the latest figures, corrected each

week, on "New Building"; this table includes the twenty largest cities of the country. The "Bank Clearings" also appear on this sheet, first for New York City and then for the entire country outside of New York. There are statistics on "Business Failures" by individual firms and by liabilities. There are figures on both Emigration and Immigration, all of which are of distinct aid in accurately determining mercantile conditions.

Next appears a group of statistics on monetary conditions; the "Loans" of the banks and the "Deposits" of the banks are given, together with the "Cash" held and the "Surplus Reserve." A comparison of the latest Comptroller's Report with nine other Comptroller's Reports of the same season of the year is given. I always say to those who borrow money, that there are two items which should be constantly watched, namely the percentage of loans to deposits and the percentage of cash to loans. Under this same group of statistics on monetary conditions are the figures on foreign trade including "Imports" and "Exports" and the "Balance of Trade" figures. These show merchants which way the tide is running; so at a glance they can note the change the moment the tide turns. There are also tables on "Money Rates," both domestic and foreign; for the relation between the two is intensely valuable in forecasting changes in credit conditions. There are also various other tables of statistics which bear indirectly on these points, the most interesting of which are the "Production of Gold" figures and a comparison of the "Commodity Prices," Index Numbers of America and England.

Many lines are very dependent on the investment situation, especially the jewelry trade, the automobile trade, the fine rug trade, and the specialty stores of our large cities. Merchants engaged in them use statistics relative to the "Transactions in Securities," the "Average Prices of Stocks," the "Average Prices of Bonds," the "New Securities Listed," the "New Corporations Organized," the latest "Railroad Earnings" and idle car figures, etc., etc. Then, of course, such sheets contain the latest statistics of the crops, with the estimated acreage, condition, and production. Not only do they afford valuable information relative to winter wheat,

spring wheat, corn, cotton, but also statistics relative to pig iron, copper, etc.

Such maps and sheets are revised continually and contain the very latest facts and figures obtainable and the corresponding figures for the same months for a period of nine or ten years for purposes of comparison. But this is not all; many statisticians have found that the average manufacturer or business man is too nervous to look at these figures, but wishes to receive them in chart form and so they are charted.

In endeavoring to keep merchants and manufacturers informed as to conditions in different lines, we find it necessary to send a letter once a week conveying the conclusions reached by our organization. One week this letter may treat of the steel and iron trade; next week of the textile conditions; another week of money rates (for money is just as much of a commodity as iron or cotton); another week of the grains; and, finally, once each month a letter on investment conditions is prepared which gives an unbiased opinion as to whether the general course of the stock market or bond market is upward or downward.

Forecasting Future Conditions.

But all this statistical work, which I have thus far mentioned, is of value primarily in keeping a business man acquainted with actual conditions existing throughout the country. The subject assigned to me, however, is in part "Forecasting" business conditions by statistics, and I am frank to say that I believe the statistician has in this also a great opportunity. Statistics have a far greater purpose than simply that of enabling business men to learn what the present conditions are; they can also aid in anticipating what will happen. Of course, the captain of an ocean liner wants to know what the weather is today, and carefully writes a description of it in his log, but primarily he is interested in what the weather will be tomorrow. To anticipate future conditions he uses his barometer and other scientific instruments. As a captain of one of the Cunard liners said to me a while ago: "Mr. Babson, I have only one use for wireless

telegraphy. As to what is happening at home, I care not, nor do I wish wireless telegraphy in calling for help; but I am especially interested in knowing the condition of the weather which other ships are today experiencing. Such information is of distinct aid to me in anticipating what my weather conditions will be tomorrow or the next day. In this, wireless telegraphy is of great service."

Now the service which the wireless telegrapher is performing for the sea captain, the statistician is performing for the business man; for business conditions travel from one part of the country to another in distinct waves, as do storms; in fact, these waves travel in clearly defined courses from one country to another following steamship and other routes. Therefore, by watching business conditions *in all sections* and *in all lines* and doing this *every week* or two, in order to keep in touch with these *movements*, ascertaining the *direction* and *rate* of speed at which the various waves of prosperity and depression are travelling, any business man may anticipate very closely future changes in business. This is the work which statisticians are doing today for hundreds of manufacturers and merchants. Moreover, today's methods are very crude and capable of great development. However we all know that the fundamental principle is correct, and it is only a question of study and expenditure to be able to discover and trace all the major and minor trade movements which are slowly but surely moving across our globe.

This brings me to a brief description of the Composite Plot of Business Conditions, so-called, which, by the way, a great many business men today refer to as their "Barometer." In the course of preparing charts, statisticians have found that a very interesting method of showing at a glance the conditions of general business throughout an entire country consists of combining the charts on the various subjects above mentioned, such as failures, bank clearings, crops, immigration, etc., and making a composite plot thereof, like that herewith exhibited: (see Exhibit C).

This gives a sort of trial balance for the entire country. The line X–Y represents the country's normal growth, based on bank clearings, etc.; and the areas above this line of normal

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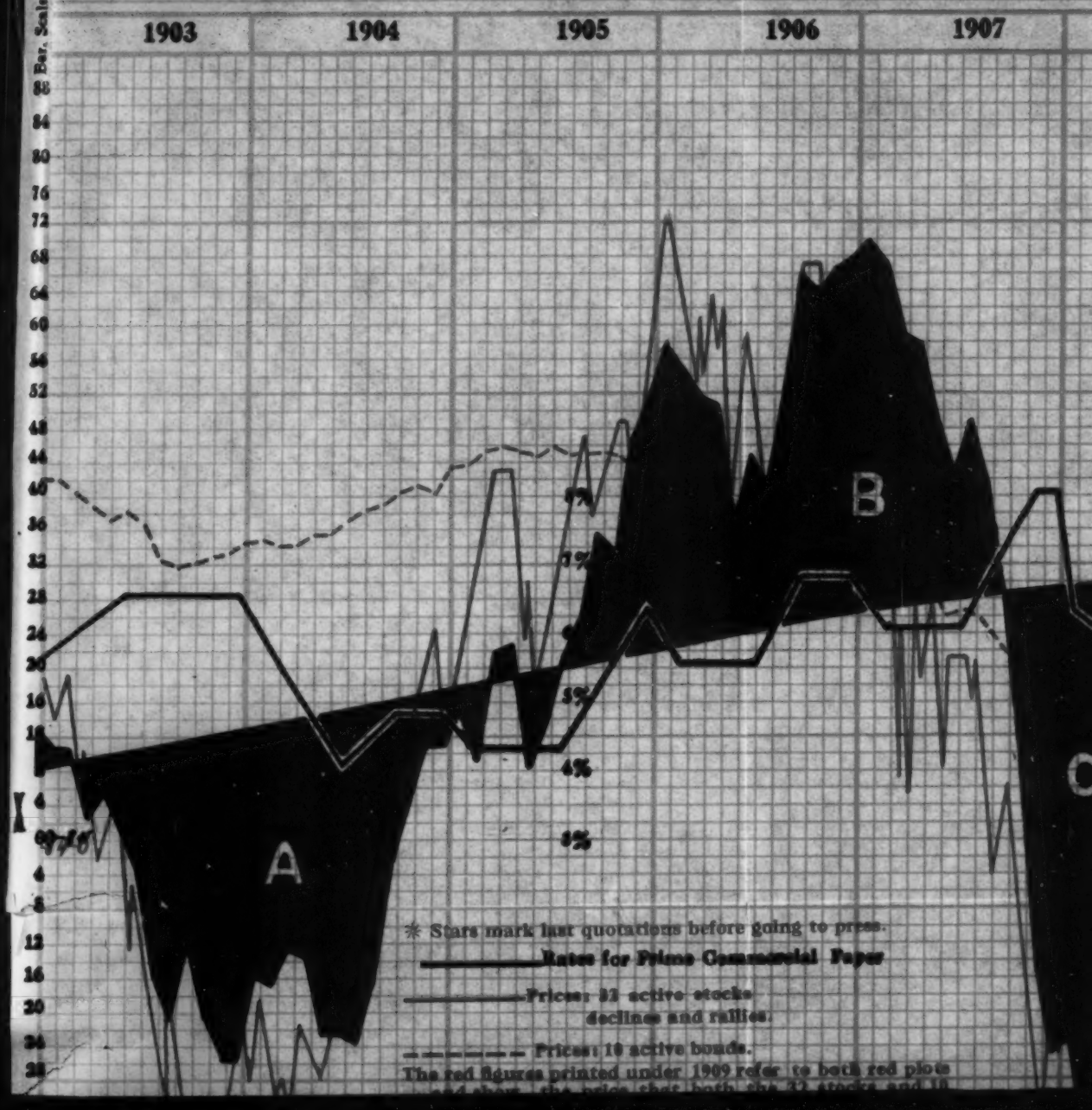
Composite Plot of the Summary Barometer Fi

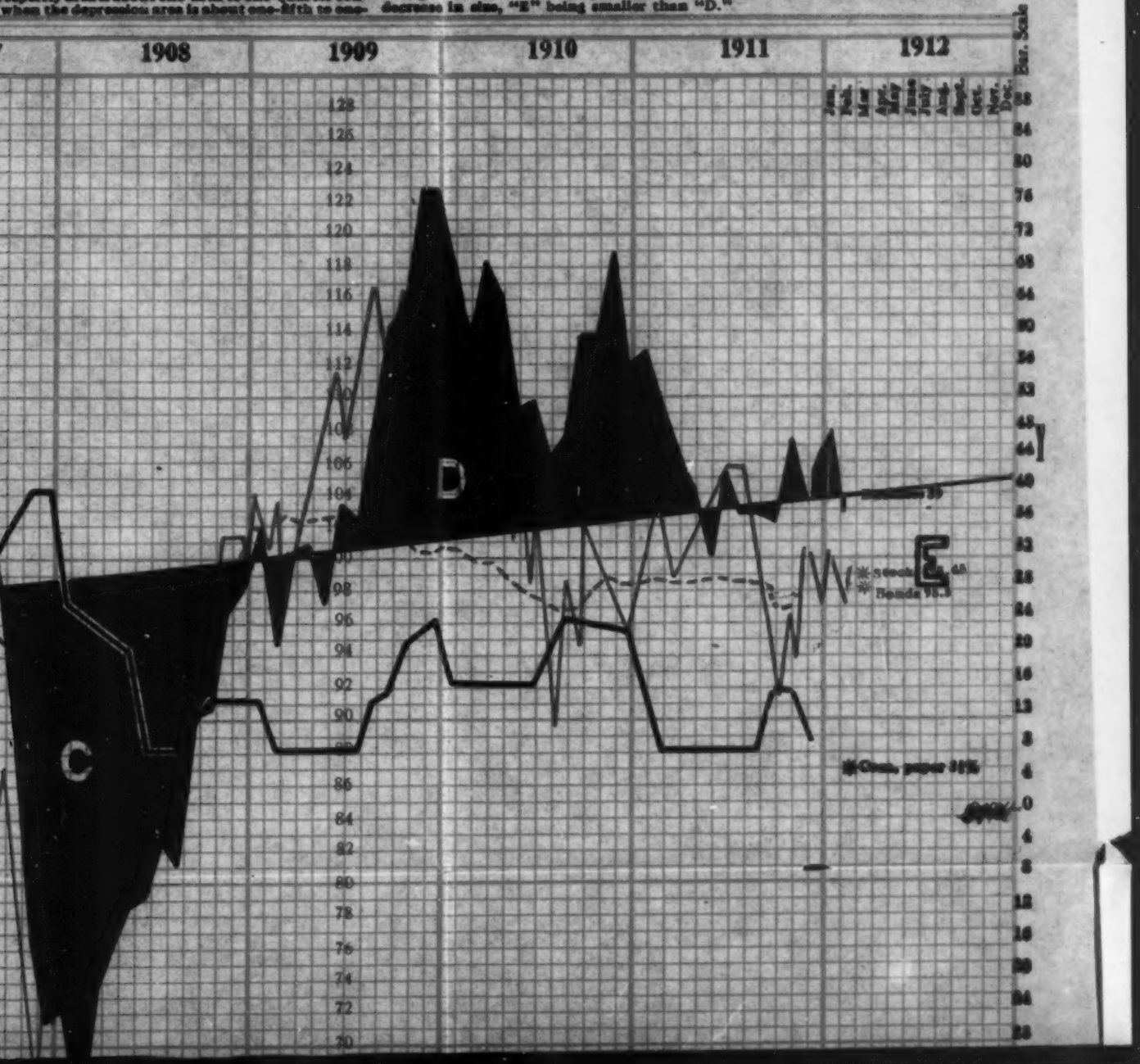
Note: The large black areas are formed by combining and plotting the published figures for the past six years on New Building, Crops, Clearings, Iron Production, Money, Failures, Idle Cars, etc., in order to give a Composite Plot of actual business conditions, in the United States. The line XY represents the normal growth of the country's business, the slope being changed whenever there is a change in the trend of conditions as shown by clearings, etc. Based on the economic theory that "action and reaction are equal" when the two factors of time and intensity are multiplied to form an area, the sums of the areas above and below said line of normal growth XY must, over a sufficiently long period of time, be equal, provided the line XY is properly located and enough subjects are herewith included, with all properly weighed and combined. Moreover, owing to the law of averages, and certain psychological laws, these separate areas tend to be equal *in area*, although not necessarily in shape. Thus we are entering another depres... be formed below the line XY since the area D ... of the average of areas "A," "B" and "C." ... this next period (which will be called "E") ma... anything heretofore witnessed and still contai... there is to be a panic or simply a gradual liqui... to be equal, one can always estimate the lengt... its height, or "rate of flow," which shows how ... solid line represents the average price of active ... price of active bonds, and the solid black line ... prime commercial paper. A study of these ... stock market has come when the prosperity ar... sumed and the low point has come when the d...



eter Figures for American Business Conditions

Entered at Stationer's Hall, London

ther depression (which will cause another area to the area D has expanded to approximately the size ed "C." It, however, should be remembered that ed "E") may be of an entirely different shape from still contain a similar area, according to whether radual liquidation. Knowing that the areas tend te the length of any period by watching each week shows how rapidly it is being consumed. The red ice of active stocks, the red dotted line the average black line represents the average interest rate for ly of these lines shows that the high point of the rosperity area is about one-fifth to one-quarter con- when the depression area is about one-fifth to one-quarter consumed, that low money rates and high bond prices have come at the very beginning of a prosperity area and high money rates and low bond prices at the beginning of a depression area. To use this Composite Plot in connection with one's own business, the observer should plot his own sales thereon and note what portion of the respective areas has been consumed when his own sales were greatest or smallest. When using this plot for any purpose, it should be remembered that it refers to the *minor* cycles and not to the *major* cycles shown by the dotted line on the stock market chart filed under Division IX of the Book of Charts and also that this work in its present state should be watched in conjunction with other data and not be treated "as a rule of thumb" and substituted for independent thought and judgment. Moreover, owing to the increased study of fundamental conditions these areas should slowly decrease in size, "E" being smaller than "D."



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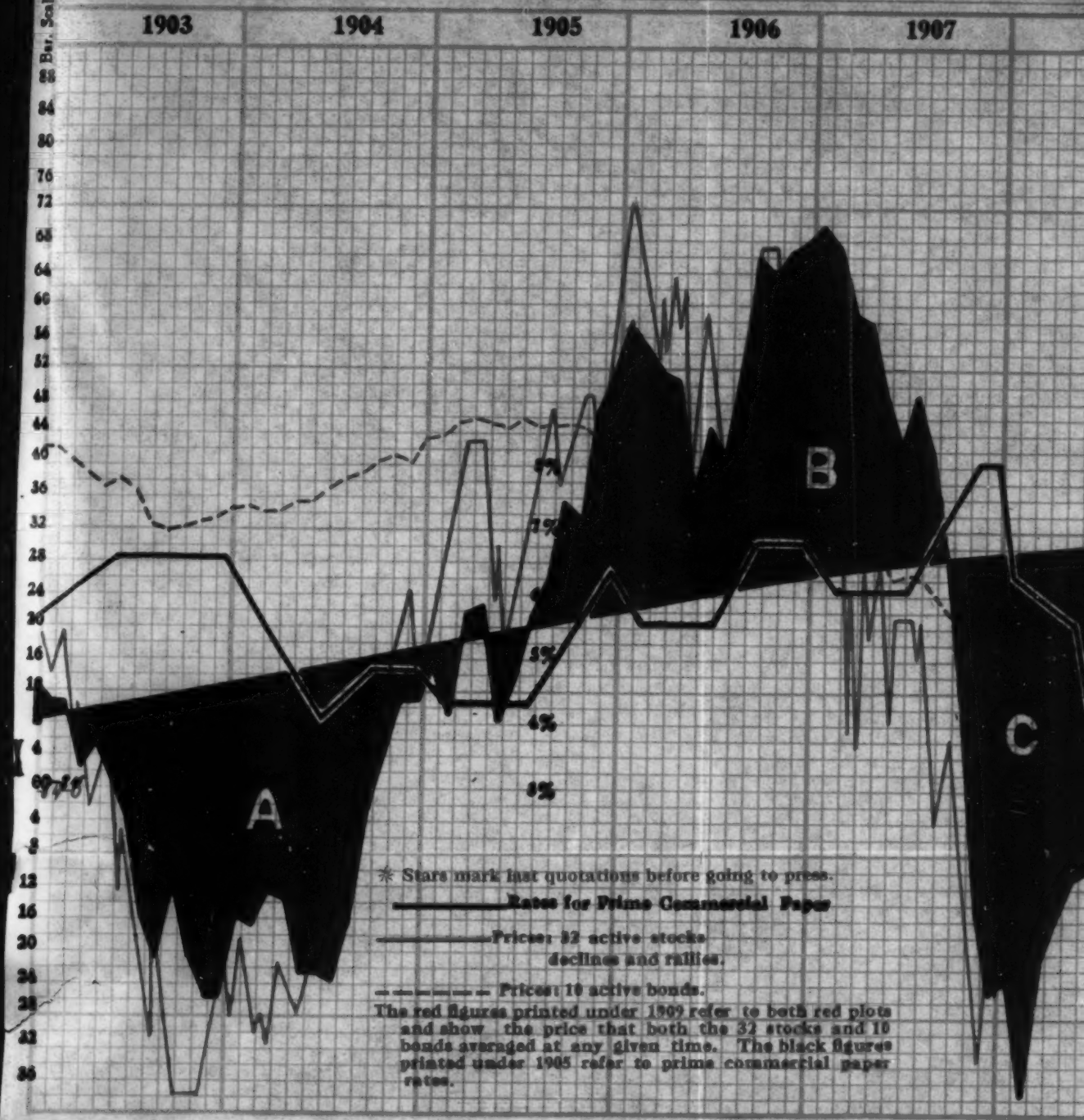

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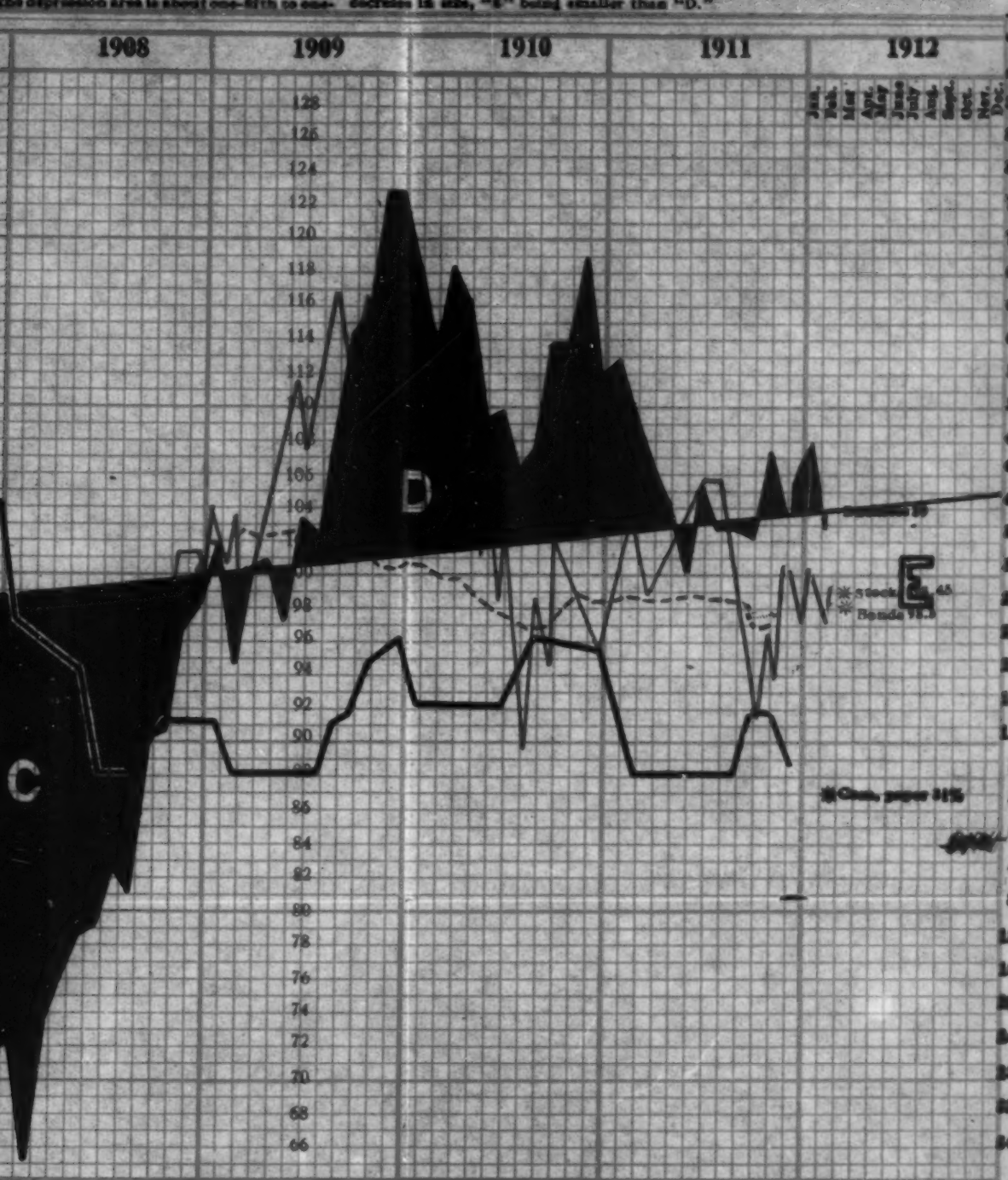

growth, such as B and D, represent periods of abnormal prosperity; while the areas below this line of normal growth, such as A and C (and E which we are apparently now entering) represent periods of depression or readjustment. Like the maps, this aids the busy merchant to see at a glance the composite result, and obviates the necessity of studying individual charts. For instance, this Composite Plot shows at once whether the country is entering a period of prosperity or a period of depression, and roughly how far advanced is this period.

In the eyes of many statisticians, however, this Composite Plot has a great additional advantage in aiding the banker, merchant, or investor to anticipate business conditions. Those of us who belong to that class base our opinions largely on the belief that the fundamental law of "action and reaction being equal when the total force involved is considered" applies to business as well as to mechanics, chemistry, and every other known art or science. Although we are free to admit that these areas only roughly represent actual business conditions, owing to the insufficient number of subjects included, the method of weighting and other considerations, *yet we believe that if these areas properly represent actual conditions and the line X–Y is properly located, the areas below the line must*—in the course of time—*equal the areas above the line,*—in areas, however, not in shape.

For instance, the area D, having equalled approximately the three preceding areas A, B and C, is now nearly completed, and although it is theoretically possible that every business man may at once begin to study fundamental conditions and thus avoid either another boom or another panic, in which case there would be no more areas above or below the line X–Y, it is probable that we are now entering a period of rest and readjustment. Moreover, this conclusion fully coincides with the result obtained from a study of the waves of trade on the maps above referred to.

Whether, however, this area "E" will be a deep area of short duration, or whether it will be a shallow area of long duration, cannot be told at this time. Such knowledge can come to business men only by watching each week how this

area develops. As the sea captain studies barometric conditions by watching the *method of change* of his barometer, rather than by noting simply the actual atmospheric pressure for the time being, so many statisticians believe that if business men would study these maps, figures, and especially this Composite Plot each week, noting not only the actual conditions existing today, but also the method of change each week, they could readily anticipate future business changes.

It is needless for me to say to this audience that the banker, manufacturer, merchant, or investor who can even partially anticipate the future, so as to make his purchases and sales in accordance therewith, is a business success, while the man who is unable to do this is ultimately a failure. Moreover, the work of the statistician is not only a distinct aid to his employer in directing his buying, selling, producing and distributing, but I believe each one of us engaged in such work is rendering a great service to this nation, the future of which depends not on tariffs or ship-subsidies, not on Sherman Laws, nor on any other such legislation, but on educating our bankers, manufacturers, and merchants in the fundamentals of uprightness and economics. In other words, the future of this country depends on the preacher and the statistician.

THE RURAL SOUTH.*

By John Lee Coulter, Ph.D., *Expert Special Agent, Bureau of the Census.*

Probably no greater change has taken place in the agricultural conditions of any other part of this country during the last half century than that which has come over the South. The change is doubtless as great or greater than that which has taken place in any country at any period in such a few years. The immediate cause of the change was doubtless the freeing of the Negroes who had been slaves. I know nothing of the merits of the controversy which led up to that event, except in so far as I have read history or have talked with veterans of the Union and Confederate armies, because the feeling which continued for some time after the war had disappeared almost entirely before I was old enough to understand the meaning of the conflict, and further because both of my parents came to the United States several years after the close of the war. I shall not, therefore, devote any time to the immediate cause of the change in the rural conditions of the South, but I shall tell of some of the features of the change, try to interpret their significance, compare present conditions with those of other parts of the United States, and point to some of the present tendencies.

I desire first to limit the field in order that I may more easily deal with the subject. I have, therefore, chosen to consider the movement in only eight states: namely, the old Southern States east of the Mississippi River, including Mississippi, Alabama, Georgia, South Carolina, North Carolina, Tennessee, Kentucky and Virginia. I have limited the area in this way in order to eliminate the range and cattle question and the newer developments in Oklahoma, Arkansas, and Texas, as well as the fruit and small vegetable movement in Florida and similar features in other neighboring states. It seemed to me that the area chosen would best illustrate

*Paper presented at the joint meeting of the American Economic Association and the American Statistical Association, Washington, D. C., December 28, 1911.

the movement in the old South. What I have to say concerning the area considered would, of course, apply equally well to sections of some of the other states. I wish, as a starting point, to give special attention to the status of the eight states in question as it existed in 1860 and compare it with conditions at different dates during the last fifty years.

The first thing to consider, concerning these eight states, is the all-important fact that their aggregate population in 1860 was 7,994,000, whereas in 1910 it was 16,802,000. This is an increase in fifty years of almost exactly 100 per cent. In contrast to this, the amount of land in farms in these states was 161,607,000 in 1860 and 163,921,000 in 1910. This is a net increase of only 2,314,000 acres, or 1.4 per cent. It is worth while to note that the total land area of these states is 228,945,000 acres. The land in farms, therefore, at the present time is 71.6 per cent. of the total land area as compared with 70.6 per cent. fifty years ago. Thus, while population doubled during the half century, there was practically no change in the amount of land in farms. There have been increases in some sections of all of these states, but they have been offset by decreases found in the rough mountainous areas where large tracts of land have reverted to forest or have been taken from agriculture and are now reported as mineral lands. There are also many thousands of acres of coast land which formerly were used for rice cultivation or other purposes, but which have, at least temporarily, passed out of the class "agricultural land." Some land, too, because of long years of use and deterioration has temporarily passed out of cultivation. The net change in fifty years is only 1.5 per cent.

In spite of the fact that the amount of land in farms has changed but little, there has been an increase in the number of farms from 504,000 to 1,948,000. Thus, there are now almost four times as many farms as there were in 1860. It must be very clear from this that the size of the average farm has *decreased* in proportion to the *increase* in the number of farms. The average farm as reported in 1860 was 321 acres, while now it is 84 acres. This, then, is the change: the amount of farm land increased but slightly, but the number of farms

increased fourfold, with the result that the average farm is about one fourth as large as the average farm 50 years ago. It is evident then that whereas there were 63 farms per 1,000 of population in these states in 1860, there are now nearly twice that many (116).

Turning now to a consideration of the improved land in farms, which after all is more important from some standpoints than the total area of land in farms, it is significant to note that there has been a constant, quite gradual although decided increase in the proportion of farm land improved. In 1860 only 33.5 per cent. of all land in farms was improved. This amounted to 33.9 per cent. in 1870 and 36.7 per cent. in 1880. The absolute amount of land improved was 54,135,000 acres in 1860. In 1870 it had decreased to 47,485,000 acres, a decrease of 6,650,000 acres, or 12.3 per cent. But by 1880 the amount of improved land had increased to 58,149,000 acres, which is almost 4,000,000 acres above the amount in farms in 1860. It is clear, therefore, that it was not until about 1880 that the South had completely recovered from the war, so far as bringing land into cultivation was concerned.

But other remarkable changes were taking place. During the first 20 years of the period I am considering the revolution in land tenure had gotten well under way. The number of farms had more than doubled in that period,—notwithstanding the fact that the amount of land improved had remained constant,—and the average amount of improved land per farm was just one half what it had been 20 years before.

Since 1880 the movement has continued. The improved land was 36.7 per cent. of all land in farms in 1880; it amounted to 42.4 per cent. in 1890, 45.7 per cent. in 1900 and 49.4 per cent. in 1910. Thus, the improved land in farms was just one third of all land in farms half a century ago, whereas now it is almost exactly one half of all farm land. During this same period there has been a downward movement in the average amount of land of all kinds per farm and in the average amount of improved lands per farm. The number of farms doubled in the first 20 years,—from 1860 to 1880,—and it has almost doubled again in the last 30 years, increasing from

1,078,000 to 1,948,000. The average acreage per farm of all land now is 84, and of improved land 42.

The agricultural movement was much alike in all of the eight states, although more pronounced in some than in others. I shall not attempt to compare the states or to compare one section of any state with other sections. A comparison of conditions in a group of some 250 counties with all other counties in these states would have brought out in an even more pronounced way the revolution which has taken place. Suffice it to say here, that while at the present time approximately 50 per cent. of the land is improved in this entire group of states, it exceeds 50 per cent. in Kentucky and Tennessee, is just 50 per cent. in Virginia, and ranges from 40 to 50 per cent. in the other states. The opportunity for further development is very evident. Assuming that the average farm continues to contain about 40 acres of improved land, and that all of the land in farms could be brought into use, there is still room to double the number of farms in these states even if no more land were brought into farms.

In average amount of land per farm and improved land per farm, the status of the different states corresponds closely to the status of the whole group. The average amount of improved land per farm for the entire group is about 42 acres. It slightly exceeds 50 acres in Kentucky and Virginia, and falls below 40 acres in North Carolina, South Carolina, Alabama, and Mississippi.

Value of Farm Property.

Before discussing in detail the number of farms by size groups, the tenure of these farms, and the amount expended for labor, I desire to present briefly a statement of the value of farm land and buildings, and equipments in the eight states. The total value of farm property,—which includes the land, buildings, implements and machinery, and live stock,—was given in 1860 as $2,048,000,000 in round numbers. The effects of the war are clearly evident when I state that in 1870 the total value reported was only slightly more than one half of this amount ($1,137,000,000). Recovery was

slow. In 1880 the total value was reported as $1,486,000,000. In 1890 another gain had taken place and the total amount reported was $1,875,000,000. It was not until 1900 that the total value of farm property was reported at about the same as the amount given in 1860. Indeed, even in 1900 the total value ($2,135,000,000) was only about 4 per cent. above that reported 40 years before. During all of this time a constant and large increase in farm values had taken place in the United States as a whole. Between 1860 and 1870, there was an increase of approximately $1,000,000,000 and between 1870 and 1890 the total value had almost doubled, increasing from less than $9,000,000,000 to slightly more than $16,000,000,000. From 1860 to 1900 the value of farm property in the United States, as a whole, increased from $7,980,000,000 to $20,439,000,000, or 156 per cent.; whereas in this group of eight Southern States there was an increase of only 4 per cent. Thus it required this entire period to recover from the destruction wrought during the early sixties.

If, however, the increase was slow during the first three decades after the war, this cannot be said of the last ten years. Between 1900 and 1910 the total value of farm property in this group of eight Southern States more than doubled, showing an increase from $2,135,000,000 to $4,318,000,000, or 102 per cent. as compared with 100.5 per cent. for the United States. The rates of increase varied slightly from state to state, but for the whole group of eight states, the increases and decreases are fairly constant.

What I said of "all farm property" could have been said in almost the same words concerning each class of farm property. The total value of the land and buildings decreased nearly 50 per cent. between 1860 and 1870, and in 1900 had only slightly exceeded the value attained in 1860. Implements and machinery decreased in the same way, but by 1900 the value quite decidedly exceeded that in 1860, although in 1890 it had not recovered. In the case of live stock the total value fell off in the same way between 1860 and 1870. There were material increases in each decade from this time, and in 1900 the total value just exceeded the total value reported in 1860.

Farms by Size Groups.

One of the most significant pieces of information available, is obtained through the classification of farms in these states by size groups. At each census it is possible to divide the total amount of land in farms by the total number of farms, and in that way arrive at the average size per farm. This is very unsatisfactory because at best a very few large farms raise the average size very materially, and entirely conceal the fact that there were present great numbers of comparatively small farms. I noted above that in 1860 the average size of farms in this group of states was 321 acres. In 1870 it was 212 acres. It is clear that the remarkable change which I have indicated began between 1860 and 1870 and that during this time large numbers of small farms were established. The census of 1860 reported a total of 503,758 farms in the eight states. These farms were distributed according to size groups, but for some reason not known to me the total number so distributed (455,980) is only about 90 per cent. of the total number of farms that actually existed in these states. This distribution is, however, extremely significant and shows the movement clearly. In 1860 there were under 10,000 farms reported to be less than 10 acres in size; in 1870 the number was over 56,000, or an increase of 471 per cent. The increase in number of farms from 10 to 20 acres in size was about from 32,000 to 91,000, or 179 per cent.; that in farms from 20 to 50 acres was from 128,000 to 225,000, or 76.4 per cent.; and that in farms from 50 to 100 acres was from 121,000 to 149,000, or 23 per cent. By far the greatest relative increases were in the smaller size groups. The total increase recorded in all farms below 100 acres was from 291,400 to 521,700, or nearly 100 per cent. Of course this meant that the plantation of 1860 was being rapidly subdivided into small plots of land, each of which was cultivated under the direction of the owner and called a farm. The number of farms between 100 and 500 acres in size *decreased* from 147,000 to 130,000, or 11.6 per cent.; those between 500 and 1,000 acres from 13,350 to 7,740, or 43.7 per cent.; and those over 1,000 acres in size from 3,769 to 1,734, or 54 per cent. Here, again,

we have evidence of the breaking-down process which accounts for the decrease in average size of farm from 321 to 212 acres mentioned above. It should be noted in passing that probably the census of 1870 was defective in many respects and that some holdings were overlooked. It is also clear, however, that many plantations were entirely unworked and, therefore, not reported.

The great change from 1870 to 1880 marked a continuation of the breaking-down or splitting-up process. The average size of farm decreased from 212 to 147 acres, or 31 per cent. This, of course, was due to the increase in number of farms reported from 661,227 to 1,078,355, or 63.1 per cent., while the land area in farms increased only 13.2 per cent. It is best not to compare too closely the change in number of farms by size groups for this decade, because one was based on improved land per farm, while the other was on all land per farm.

Prior to 1880 no data are available showing the number of farms operated by tenants as compared with the number operated by owners. In spite of the absence of exact statistical information, it is possible to draw some conclusion from the facts already given. In 1860 the plantation was the unit over a considerable area in these Southern States. The entire plantation was reported as one farm. This is the reason for the high average size of farms. By 1870 the planters were forced to completely change their system of securing labor. Instead of slavery, hired labor or a tenancy system was necessary. Both of these were attempted. Since the average size of farm decreased from 321 to 147 acres,—*i.e.* the average farm was considerably less than one half that of 1860,—it is evident that over large areas the *tenancy* system was being rapidly introduced and the plantation being divided into small "cuts of land." Each "parcel" of land was worked by a *tenant.* This, then, was a substitute for the hired labor system in the Northern States, and although the workers were called tenants, croppers, renters, halvers, standing renters, etc., very often they were as closely supervised as hired laborers and performed only the physical labor, as the plans of work were entirely drawn up by the owners of the land. Although

Farms by Size Groups.

One of the most significant pieces of information available, is obtained through the classification of farms in these states by size groups. At each census it is possible to divide the total amount of land in farms by the total number of farms, and in that way arrive at the average size per farm. This is very unsatisfactory because at best a very few large farms raise the average size very materially, and entirely conceal the fact that there were present great numbers of comparatively small farms. I noted above that in 1860 the average size of farms in this group of states was 321 acres. In 1870 it was 212 acres. It is clear that the remarkable change which I have indicated began between 1860 and 1870 and that during this time large numbers of small farms were established. The census of 1860 reported a total of 503,758 farms in the eight states. These farms were distributed according to size groups, but for some reason not known to me the total number so distributed (455,980) is only about 90 per cent. of the total number of farms that actually existed in these states. This distribution is, however, extremely significant and shows the movement clearly. In 1860 there were under 10,000 farms reported to be less than 10 acres in size; in 1870 the number was over 56,000, or an increase of 471 per cent. The increase in number of farms from 10 to 20 acres in size was about from 32,000 to 91,000, or 179 per cent.; that in farms from 20 to 50 acres was from 128,000 to 225,000, or 76.4 per cent.; and that in farms from 50 to 100 acres was from 121,000 to 149,000, or 23 per cent. By far the greatest relative increases were in the smaller size groups. The total increase recorded in all farms below 100 acres was from 291,400 to 521,700, or nearly 100 per cent. Of course this meant that the plantation of 1860 was being rapidly subdivided into small plots of land, each of which was cultivated under the direction of the owner and called a farm. The number of farms between 100 and 500 acres in size *decreased* from 147,000 to 130,000, or 11.6 per cent.; those between 500 and 1,000 acres from 13,350 to 7,740, or 43.7 per cent.; and those over 1,000 acres in size from 3,769 to 1,734, or 54 per cent. Here, again,

we have evidence of the breaking-down process which accounts for the decrease in average size of farm from 321 to 212 acres mentioned above. It should be noted in passing that probably the census of 1870 was defective in many respects and that some holdings were overlooked. It is also clear, however, that many plantations were entirely unworked and, therefore, not reported.

The great change from 1870 to 1880 marked a continuation of the breaking-down or splitting-up process. The average size of farm decreased from 212 to 147 acres, or 31 per cent. This, of course, was due to the increase in number of farms reported from 661,227 to 1,078,355, or 63.1 per cent., while the land area in farms increased only 13.2 per cent. It is best not to compare too closely the change in number of farms by size groups for this decade, because one was based on improved land per farm, while the other was on all land per farm.

Prior to 1880 no data are available showing the number of farms operated by tenants as compared with the number operated by owners. In spite of the absence of exact statistical information, it is possible to draw some conclusion from the facts already given. In 1860 the plantation was the unit over a considerable area in these Southern States. The entire plantation was reported as one farm. This is the reason for the high average size of farms. By 1870 the planters were forced to completely change their system of securing labor. Instead of slavery, hired labor or a tenancy system was necessary. Both of these were attempted. Since the average size of farm decreased from 321 to 147 acres,—*i.e.* the average farm was considerably less than one half that of 1860,—it is evident that over large areas the *tenancy* system was being rapidly introduced and the plantation being divided into small "cuts of land." Each "parcel" of land was worked by a *tenant*. This, then, was a substitute for the hired labor system in the Northern States, and although the workers were called tenants, croppers, renters, halvers, standing renters, etc., very often they were as closely supervised as hired laborers and performed only the physical labor, as the plans of work were entirely drawn up by the owners of the land. Although

tenancy was increasing rapidly, the tenant in the area under consideration was not strictly comparable to a tenant on the Northern farms, but was a substitute for the hired laborer of that region. In 1870 and in all later censuses, however, each of these parcels of land was recognized as a farm, and each family as a farm-family, and the head of it as a farmer. The fact that the number of farms increased considerably more than 100 per cent. between 1860 and 1880 means that the census recognized each of these small subdivisions of the plantations as a unit rather than the plantation itself.

Beginning with 1880, facts are available in regard to the number of farms by size groups and the number of tenants contrasted with the number of owners. An analysis of these facts throws a flood of light on the situation. At the census of 1880 there were reported for the eight states over 44,000 places less than 10 acres in size. Since 1880 the number has constantly increased until in 1910 there are almost three times as many: namely 118,000. The next group of farms is from 10 to 20 acres in size. In 1880 about 100,000 such were reported, whereas at the present time there are nearly 245,000. In this class of farms there has been a consistent and rapid increase, amounting to nearly 150 per cent. in 30 years. Still more important is the group of farms between 20 and 50 acres in size of which there were 252,000 in 1880, as against 656,000 in 1910. The number of farms between 50 and 100 acres likewise increased, although not nearly so rapidly as the number in the other size groups mentioned, the increase being from 222,000 to 428,000 during the 30 years under consideration. It is unfortunate that the next size group is so large, including as it does all farms from 100 to 500 acres. The increase in the number of farms from 100 to 200 is so great that a net increase is shown in the 30-year period in the total number of farms between 100 and 500 acres; the increase, however, is only from 409,000 to 474,000. Indeed, an absolute decrease in farms of that size is taking place at the present time, which during the last 10 years has resulted in a diminution of 18,500 farms. This shows that the large farms (or if we may still speak of them as "plantations") continue to be divided

into smaller parcels of land operated by tenants or small farmers.

This fact becomes even more apparent when we note the number of farms between 500 and 1,000 acres in size. In 1880, although large numbers of plantations had been subdivided into smaller parcels of land operated by tenants, there were still 37,000 of them reported. But in 1890 their number had decreased to about 33,000; by 1900 to 24,000; and in 1910 there were only 20,000 plantations of between 500 and 1,000 acres. This striking movement which clearly indicates a continued subdivision of these large places, becomes even more notable when we observe the movement in the number of places over 1,000 acres in size. In 1880 there remained 14,000 such holdings, probably properly called "plantations." They were gradually reduced. By 1890 their number was less than 12,000. In 1900 it was about 7,900, while by 1910 it had decreased until it is less than 6,700.

Briefly stated, the whole movement during the half century under consideration shows that the amount of land in farms has not changed greatly. The real movement has been a change in the method of carrying on the work of producing crops. In 1860 the common system in the Northern States was, where the farm-family could not do all the work, to employ hired labor, while on many plantations in the South, the labor was performed by slaves. After the war, instead of establishing the hired labor system prevailing in the Northern States a change was made to a system under which each laboring family was not hired at a definite wage but assigned to a piece of land and given part of the crop as compensation for his labor. No greater mistake has been made in collecting data concerning agricultural conditions than that of not securing information about the number of actual owners of land and the amount owned. Beginning with 1870 the reports show more nearly the number of farm-families. There has been no parallel presentation showing the movement of the number of plantations. The first attempt to secure data, recognizing both units, is that undertaken by the Census Bureau in 1910. Although the results will not be complete for the entire South,

this will show as far as possible for the old plantation area the extent to which the plantation still exists and the number and extent of the holdings as contrasted with the number of small units or parcels of land operated by farm-families.

In order to indicate more clearly the actual movement in the Southern States as contrasted with other parts of the United States, it is worth while to note that the census of 1910 shows that of all farmers slightly more than 66 per cent. of those in Mississippi, nearly 66 per cent. of those in Georgia, 63 per cent. of those in South Carolina, and over 60 per cent. of those in Alabama are worked by tenants. In these four states, there are 642,000 of these parcels of land operated by tenants. In North Carolina and Tennessee, to the north of the four states just considered, more than 40 per cent. of the farms enumerated are worked by tenants; in Kentucky 34 per cent. and in Virginia almost 27 per cent. are so worked. The ten states which have the largest percentage of tenancy are Southern States, but this tenancy is quite different from the tenancy in the Northern States.

Between 1880 and 1910 there has been a considerable increase in the number of farm owners. In 1880 there were 672,000 owners and managers, whereas in 1910 there were 961,000, an increase of 289,000, or 43 per cent. On the other hand, there were only 407,000 tenants in 1880, less than two thirds as many as owners and managers, while in 1910 there were 987,000, which is considerably more than the total number of farmers who own either all or part of their land, or who are hired managers. The increase was 580,000, or 143 per cent.

In 1880 the value of "all farm property" per acre of farm land was $9.37. By 1890 it was $11.78, an increase of $2.41 per acre, or over 25 per cent. During that decade there was an increase of 169,499 farms, or 15.7 per cent., the owners increasing only 74,212, or 11 per cent., while the tenants increased 95,237, or 23.4 per cent. It would seem that with advancing land values ownership becomes more difficult. By 1900 the average value of all farm property per acre of farm land was $13,00 an increase of only $1.22, or 10.4 per cent.

But the increase in number of farms amounted to 428,078, or 34.3 per cent. As farm values continued to increase, so a smaller part of the increase in number of farms was among owners. Owners increased 120,868, or 16.2 per cent., while tenants increased 307,210, or 61.2 per cent. The same movement continues. The number of farms increased 271,802, or 16.2 per cent., during the last decade, the owners increasing only 93,826, or 10.8 per cent., while the tenants increased 177,976, or 22 per cent. The average value of all farm property per acre of farm land increased from $13.00 to $26.34, or more than 100 per cent. during the same period.

If it is unfortunate that no data are available prior to 1880 showing the number of farms by size-groups and number of farmers classed as tenants as contrasted with owners and managers; it is even more unfortunate that the number of farms operated by white farmers was not separated from those operated by Negroes. In 1900 the first data covering this point were collected and they show that in this group of eight states one third of the farms were operated by colored farmers, and two thirds by white farmers; further that of the colored farmers only about one fifth were owners, while among the white farmers nearly two thirds lived on owned farms. Here, again, we have clear evidence that the system of tenancy established as a substitute for hired labor applies much more largely to colored than to white farmers. In 1900 there were more than 400,000 Negro tenants in these states. In 1910 the number had increased to considerably more than 500,000. During the decade there was an increase in the total number of farms, amounting to 271,802, or 16.2 per cent. The increase in the number of whites was 149,277, or 13.1 per cent., while that of Negroes was 122,525, or 22.9 per cent., showing that Negro farmers are increasing at a greater rate than the white.

As noted above, the total increase in number of farms was 271,802. Of these 149,277, or 54.9 per cent., were white farmers and 122,525, or 45.1 per cent., Negroes. On the other hand, the increase in number of owners was 93,826 and of these 70,004, or 74.6 per cent., were whites, and only 23,822, or 25.4 per cent., Negroes.

Probably the best evidence that the small farm and tenant system in the South is a substitute for the hired labor system on the Northern farms is brought out in an investigation of the extent to which farmers employ labor in different parts of the United States. An analysis of the report for 1909 shows that two thirds of the farmers in the New England and Middle Atlantic States employ hired labor. In the North Central and in the Mountain and Pacific States more than one half of the farmers employ hired labor. In contrast to this scarcely one third of the farmers in all of the Southern States employ labor. For the group of states on which I have reported, about 36 per cent. hire labor. This high average is due to the fact that in Virginia 46 per cent. report labor employed and North Carolina, South Carolina, and Georgia each show almost 40 per cent. The most interesting feature of this analysis is the fact that the change of the system from "hired labor" to "small farm and tenant" can be traced as gradual from one extreme of the country to the other. Thus, in Massachusetts, in the New England division, 72.5 per cent. of all farmers report hired labor, and they report an expenditure of $452 per farm. This gradually decreases as one proceeds South until Virginia is reached where 46 farmers out of every hundred report hired labor, with an expenditure of $158 per farm. In North Carolina, South Carolina, and Georgia, 39 out of every hundred employed labor, with an average expenditure per farm ranging from $95 to $166. Alabama is next in order where less than 32 out of every hundred report any expenditure for labor, and Mississippi follows with only 24 farmers out of every hundred reporting. Mississippi, which shows the lowest percentage of farms reporting expenditures for labor (23.9 per cent.), has the highest percentage of tenancy (66.1 per cent.). Massachusetts on the other hand, with only 8.1 per cent. of tenancy, shows 73 farms out of every hundred as reporting labor.

It is not only a fact that the tenant system is a substitute for the hired labor system in other parts of the country, but that in these Southern States the farmers who report expenditures for labor state an exceedingly small amount. In the

New England and Middle Atlantic States an average expenditure of about $260 per farm for labor is maintained, while in the North Central States the average runs well over $225. In the Mountain and Pacific States it amounts to $600 per farm. In contrast, the average in the Southern States is considerably less than $150, indeed, in the east South Central division, it is only $107. In three Southern States the average is less than $100, including the estimated value for rent and board as well as cash. If merely the amount expended in cash is considered, it is found that in five of the eight states which I have been discussing, the average expenditure for labor per farm reporting is considerably less than $100.

This analysis may advantageously be carried much farther. Just as it is true that tenancy is low and the proportion of farmers employing labor very high in Massachusetts, while the reverse is true in Mississippi, so, too, just as tenancy is comparatively low among the white farmers and high among the Negroes, the proportion of white farmers who employ labor is high, while the reverse is true of Negro farmers. About 40 per cent. of the white farmers report expenditures for labor and only 27.6 per cent. of the Negro farmers. Just as the farmer in Massachusetts who employs labor has a much higher average expenditure than is shown for Mississippi, so, too, the expenditure per farm of white farmers averages $139, while that of Negro farmers averages only $58.

What of the future? As more land is brought into farms and as more farm land is improved, will the number of these small farms increase? Will the average farm grow still smaller, and the result be an increase in number of farm-families? If the small farm is to continue, will it be operated by tenants or owners? Is the rapid upward movement of land values to result in a slower increase of small ownership and gradually make it impracticable? And, with the upward movement of land values, will the introduction of larger machines for preparing the soil, for planting, cultivating, and picking or harvesting the crops mean larger fields? Will this in turn demand diversified cultivation in order to conserve the resources and supply the people with more goods for home use,

and, therefore, mean larger farms? If higher land values, larger farms, diversified and operated with larger and more economic machines come, must the cabins be moved back and the fields be cleared and combined? And if this happens, must tenants give way to hired labor? With hired labor must the planter return to the farm in order to make more effective the necessary supervision? Will he the more willingly return because of the extremely high cost of living in the cities, and the fact that he may now have good roads, automobiles, telephones, rural mail, parcels post, cold storage, and fresh and cheap materials for home use?

The attempt on the part of the Census Bureau to make a clean-cut study of the present status of the plantation should make it possible to answer some, if not all, of these questions, and many others not considered here.

TABLE I.

AN ANALYSIS OF THE POPULATION, NUMBER OF FARMS, AND FARM ACREAGE OF CERTAIN SOUTHERN STATES FROM 1860 TO 1910.

States.	Year.	Population.	Number of Farms.		Farm Areas.						
			Total.	Per 1,000 of Population.	Total Acreage.	Improved Land.	Unimproved Land.	Per cent. of		Average per farm.	
								Land Area in Farms.	Farm Land Improved.	All Land Acres.	Improved Land Acres.
Total for the group	1910	16,802,321	1,947,684	116	163,920,835	81,025,976	82,894,859	71.6	49.4	84.2	41.6
	1900	14,852,398	1,675,882	113	164,281,953	75,050,633	89,231,320	71.8	45.7	98.0	44.8
(Approximate land area—	1890	12,691,585	1,247,804	98	159,141,293	67,521,387	91,619,906	69.5	42.4	127.5	54.1
228,944,840 acres.)	1880	11,035,223	1,078,355	98	158,573,189	58,148,956	100,424,233	69.3	36.7	147.1	53.9
	1870	8,590,684	661,227	77	140,058,153	47,484,655	92,573,498	61.2	33.9	211.8	71.8
	1860	7,994,237	503,758	63	161,606,690	54,134,820	107,471,870	70.6	33.5	320.9	107.5
Kentucky	1910	2,289,905	259,185	113	22,189,127	14,354,471	7,834,656	86.3	64.7	85.6	55.4
	1900	2,147,174	234,667	109	21,979,422	13,741,968	8,237,454	85.5	62.5	93.7	58.6
(Approximate land area—	1890	1,858,635	179,264	96	21,412,229	11,818,882	9,593,347	83.3	55.2	119.4	65.9
25,715,840 acres.)	1880	1,648,690	166,453	101	21,495,240	10,731,683	10,763,557	83.6	49.9	129.1	64.5
	1870	1,321,011	118,422	90	18,660,106	8,103,850	10,556,256	72.6	43.4	157.6	68.4
	1860	1,155,684	90,814	79	19,163,261	7,644,208	11,519,053	74.5	39.9	211.0	84.2
Tennessee	1910	2,184,789	246,012	113	20,041,657	10,890,484	9,151,173	75.1	54.3	81.5	44.3
	1900	2,020,616	224,623	111	20,342,058	10,245,950	10,096,108	76.2	50.4	90.6	45.6
	1890	1,767,518	174,412	99	20,161,583	9,362,555	10,799,028	75.6	46.4	115.6	53.7
(Approximate land area—	1880	1,542,359	165,650	107	20,666,915	8,496,556	12,170,359	77.5	41.1	124.8	51.3
26,679,680 acres.)	1870	1,258,520	118,141	94	19,581,214	6,843,278	12,737,936	73.4	34.9	165.7	57.9
	1860	1,109,801	82,368	74	20,669,165	6,795,337	13,873,828	77.5	32.9	250.9	82.5
Virginia	1910	2,061,612	184,018	89	19,495,636	9,870,058	9,625,578	75.7	50.6	105.9	53.6
	1900	1,854,184	167,886	91	19,907,883	10,094,805	9,813,078	77.3	50.7	118.6	60.1
	1890	1,655,980	127,600	77	19,104,951	9,125,545	9,979,406	74.1	47.8	149.7	71.5
(Approximate land area—	1880	1,512,565	118,517	78	19,835,785	8,510,113	11,325,672	77.0	42.9	167.4	71.8
25,767,680 acres.)	1870	1,225,163	73,849	60	18,145,911	8,165,040	9,980,871	70.4	45.0	245.7	110.6
	1860	1,219,630	62,231	51	20,220,657	9,091,694	11,128,963	78.5	45.0	324.9	146.1
North Carolina	1910	2,206,287	253,725	115	22,439,129	8,813,056	13,626,073	71.9	39.3	88.4	34.7
	1900	1,893,810	224,637	119	22,749,356	8,327,106	14,422,250	72.9	36.6	101.3	37.1
	1890	1,617,949	178,359	110	22,651,896	7,828,569	14,823,327	72.6	34.6	127.0	43.9
(Approximate land area—	1880	1,399,750	157,609	113	22,363,558	6,481,191	15,882,367	71.7	29.0	141.9	41.1
31,193,600 acres.)	1870	1,071,361	93,565	87	19,835,410	5,258,742	14,576,668	63.6	26.5	212.0	56.2
	1860	992,622	75,203	76	23,762,969	6,517,284	17,245,685	76.2	27.4	316.0	86.7
South Carolina	1910	1,515,400	176,434	116	13,512,028	6,097,999	7,414,029	69.2	45.1	76.6	34.6
	1900	1,340,316	155,355	116	13,985,014	5,775,741	8,209,273	71.7	41.3	90.0	37.2
(Approximate land area—	1890	1,151,149	115,008	100	13,184,652	5,255,237	7,929,415	67.6	39.9	114.6	45.7
19,516,800 acres.)	1880	995,577	93,864	94	13,457,613	4,132,050	9,325,563	69.0	30.7	143.4	44.0
	1870	705,606	51,889	74	12,105,280	3,010,539	9,094,741	62.0	24.9	233.3	58.0
	1860	703,708	33,171	47	16,195,919	4,572,060	11,623,859	83.0	28.2	488.2	137.8
Georgia	1910	2,609,121	291,027	112	26,953,413	12,298,017	14,655,396	71.7	45.6	92.6	42.3
	1900	2,216,331	224,691	101	26,392,057	10,615,644	15,776,413	70.2	40.2	117.5	47.2
(Approximate land area—	1890	1,837,353	171,071	93	25,200,435	9,582,866	15,617,569	67.0	38.0	147.3	56.0
37,584,000 acres.)	1880	1,542,180	138,626	90	26,043,282	8,204,720	17,838,562	69.3	31.5	187.9	59.2
	1870	1,184,109	69,956	59	23,647,941	6,831,856	16,816,085	62.9	28.9	338.0	97.7
	1860	1,057,286	62,003	59	26,650,490	8,062,758	18,587,732	70.9	30.3	429.8	130.0
Alabama	1910	2,138,093	262,901	123	20,732,312	9,693,581	11,038,731	63.2	46.8	78.9	36.9
	1900	1,828,697	223,220	122	20,685,427	8,654,991	12,030,436	63.0	41.8	92.7	38.8
(Approximate land area—	1890	1,513,401	157,772	104	19,853,000	7,698,343	12,154,657	60.5	38.8	125.8	48.8
32,818,560 acres.)	1880	1,262,505	135,864	108	18,855,334	6,375,706	12,479,628	57.5	33.8	138.8	46.9
	1870	996,992	67,382	68	14,961,178	5,062,204	9,898,974	45.6	33.8	222.0	75.1
	1860	964,201	55,128	57	19,104,545	6,385,724	12,718,821	58.2	33.4	346.5	115.8
Mississippi	1910	1,797,114	274,382	153	18,557,533	9,008,310	9,549,223	62.5	48.5	67.6	32.8
	1900	1,551,270	220,803	142	18,240,736	7,594,428	10,646,308	61.5	41.6	82.6	34.4
(Approximate land area—	1890	1,289,600	144,318	112	17,572,547	6,849,390	10,723,157	59.2	39.0	121.8	47.5
29,671,680 acres.)	1880	1,131,597	101,772	90	15,855,462	5,216,937	10,638,525	53.4	32.9	155.8	51.3
	1870	827,922	68,023	82	13,121,113	4,209,146	8,911,967	44.2	32.1	192.9	61.9
	1860	791,305	42,840	54	15,839,684	5,065,755	10,773,929	53.4	32.0	369.7	118.2

TABLE II.

FARMS IN CERTAIN SOUTHERN STATES CLASSIFIED BY SIZE.

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FARMS IN CERTAIN SOUTHERN STATES CLASSIFIED BY SIZE.

States.	Year.	All Farms.	Classification by Size.							
			Under 3 Acres.	3 to 9 Acres.	10 to 19 Acres.	20 to 49 Acres.	50 to 99 Acres.	100 to 499 Acres.	500 to 999 Acres.	1,000 Acres and Over.
Total for the group	1910	1,947,684	1,322	116,387	244,489	656,289	428,132	474,001	20,407	6,657
	1900	1,675,882	8,082	84,013	179,803	503,359	376,085	492,500	24,184	7,856
	1890	1,247,804	(1)	53,664	111,073	327,023	261,425	449,995	32,711	11,913
	1880	1,078,355	1,491	42,943	100,244	251,524	221,767	408,811	37,266	14,309
Kentucky	1910	259,185	315	21,777	33,380	58,537	65,778	76,773	2,181	444
	1900	234,667	1,175	14,960	26,769	51,850	60,435	76,450	2,470	558
	1890	179,264	(1)	8,718	13,609	31,560	46,301	74,818	3,330	928
	1880	166,453	313	6,759	13,728	30,673	40,594	69,472	3,802	1,112
Tennessee	1910	246,012	143	14,713	32,485	72,212	60,105	63,995	1,878	481
	1900	224,623	1,123	9,902	25,517	61,442	57,265	66,750	2,058	566
	1890	174,412	(1)	6,844	15,237	37,074	43,328	68,076	3,046	807
	1880	165,650	220	5,821	17,335	34,783	39,541	63,315	3,549	1,086
Virginia	1910	184,018	227	17,464	22,055	42,390	38,342	59,098	3,450	992
	1900	167,886	1,671	12,898	18,334	35,644	33,948	60,191	4,100	1,100
	1890	127,600	(1)	8,284	11,566	21,708	24,667	54,903	5,077	1,395
	1880	118,517	101	7,012	9,663	19,322	22,194	53,101	5,561	1,563
North Carolina	1910	253,725	116	14,868	28,240	75,629	62,157	69,241	2,669	805
	1900	224,637	1,202	11,323	20,659	59,913	55,028	72,288	3,275	949
	1890	178,359	(1)	8,768	14,823	41,326	40,340	67,116	4,518	1,468
	1880	157,609	277	7,273	13,314	34,148	34,007	61,806	5,063	1,721
South Carolina	1910	176,434	53	14,218	23,714	70,582	33,147	31,966	1,942	812
	1900	155,355	1,193	13,075	18,828	54,384	29,944	34,607	2,314	1,010
	1890	115,008	(1)	8,551	14,907	39,852	17,941	29,347	3,083	1,327
	1880	93,864	118	7,035	12,519	27,517	13,612	27,735	3,693	1,635
Georgia	1910	291,027	98	8,602	20,929	117,432	68,510	69,985	3,950	1,521
	1900	224,691	451	5,604	13,301	73,408	52,251	73,100	4,718	1,858
	1890	171,071	(1)	4,438	10,868	55,287	32,316	59,343	6,061	2,758
	1880	138,626	101	3,110	8,694	36,524	26,054	53,635	7,017	3,491
Alabama	1910	262,901	130	13,613	28,115	106,841	55,448	55,656	2,276	822
	1900	223,220	768	10,009	20,866	80,784	47,745	59,304	2,788	956
	1890	157,772	(1)	5,127	12,004	51,861	30,414	52,736	4,054	1,576
	1880	135,864	277	3,597	13,055	41,721	26,447	44,254	4,645	1,868
Mississippi	1910	274,382	240	11,132	55,571	112,666	44,645	47,287	2,061	780
	1900	220,803	499	6,242	35,529	85,934	39,469	49,810	2,461	859
	1890	144,318	(1)	2,934	18,059	48,355	26,118	43,656	5,542	1,654
	1880	101,772	84	2,336	11,936	26,836	19,318	35,493	3,936	1,833

(1) Not Reported Separately.

TABLE III.

AMOUNTS EXPENDED FOR LABOR BY FARMERS IN CERTAIN SOUTHERN STATES.

States.	All Farmers.						White Farmers.						Colored Farmers.					
	All Farms.	Amount Expended for Labor.					All Farms.	Amount Expended for Labor.					All Farms.	Amount Expended for Labor				
		Farms Reporting.		Total.	Cash.	Rent and Board.		Farms Reporting.		Total.	Cash.	Rent and Board.		Farms Reporting.		Total.	Cash.	Rent and Board.
		Number.	Per cent.					Number.	Per cent.					Number.	Per cent.			
Total for the group	1,947,684	694,953	35.7	$81,872,512	$67,666,269	$14,206,243	1,289,339	513,445	39.8	$71,276,504	$59,304,448	$11,972,056	658,345	181,508	27.6	$10,596,008	$8,361,821	$2,234,187
Kentucky...	259,185	91,642	35.4	$12,243,851	$10,007,302	$2,236,549	247,455	89,047	36.0	$11,994,377	$9,803,451	$2,190,926	11,730	2,595	22.1	$249,474	$203,851	$45,623
Tennessee ..	246,012	88,670	36.1	8,448,059	7,036,564	1,411,495	207,704	80,285	38.7	8,027,971	6,717,062	1,310,909	38,308	8,385	21.9	420,088	319,502	100,586
Virginia	184,018	84,636	46.0	13,354,194	10,822,816	2,531,378	135,904	69,820	51.4	12,542,258	10,176,105	2,366,153	48,114	14,816	30.8	811,936	646,711	165,225
No. Carolina	253,725	97,461	38.4	9,220,564	7,643,783	1,576,781	188,069	77,922	41.4	8,235,455	6,857,411	1,378,044	65,656	19,539	29.8	985,109	786,372	198,737
So. Carolina	176,434	69,491	39.4	10,770,758	9,351,384	1,419,374	79,636	40,361	50.7	8,960,496	7,835,066	1,125,430	96,798	29,130	30.1	1,810,262	1,516,318	293,944
Georgia	291,027	113,782	39.1	13,218,113	11,185,852	2,032,261	168,468	69,567	41.3	10,566,404	8,991,742	1,574,662	122,559	44,215	36.1	2,651,709	2,194,110	457,599
Alabama ...	262,901	83,643	31.8	7,454,748	6,033,123	1,421,625	152,458	52,199	34.2	5,877,506	4,867,063	1,010,443	110,443	31,444	28.5	1,577,242	1,166,060	411,182
Mississippi..	274,382	65,628	23.9	7,162,225	5,585,445	1,576,780	109,645	34,244	31.2	5,072,037	4,056,548	1,015,489	164,737	31,384	19.1	2,090,188	1,528,897	561,291

TABLE IV.—FARM OCCUPANCY IN CERTAIN SOUTHERN STATES.

		Farms Operated by											
		Owners.			Tenants.								
					Cash Tenants.			Share Tenants.			Other Tenants.		
States.	All Farms.	Number.	Per cent.	Value of Land and Buildings.	Number.	Per cent.	Value of Land and Buildings.	Number.	Per cent.	Value of Land and Buildings.	Number.	Per cent.	Value of Land and Buildings.
Total for the group	1,947,684	1,289,339	66.2	$6,111,000,000	207,704	10.7	$1,000,000,000	408,641	21.0	$1,000,000,000	42,000	2.1	$100,000,000
Kentucky...	259,185	207,704	80.1	1,000,000,000	8,027,971	3.1	100,000,000	39,000	15.0	100,000,000	4,000	1.5	10,000,000
Tennessee ..	246,012	135,904	55.2	600,000,000	12,542,258	5.1	100,000,000	95,000	38.6	100,000,000	3,000	1.2	10,000,000
Virginia	184,018	188,069	51.0	600,000,000	8,235,455	4.5	100,000,000	87,000	47.3	100,000,000	2,000	1.1	10,000,000
No. Carolina	253,725	79,636	31.4	400,000,000	8,960,496	3.5	100,000,000	164,000	64.6	100,000,000	1,000	0.4	10,000,000
So. Carolina	176,434	168,468	95.5	600,000,000	10,566,404	6.0	100,000,000	7,000	4.0	100,000,000	1,000	0.6	10,000,000
Georgia	291,027	152,458	52.4	600,000,000	5,877,506	2.0	100,000,000	132,000	45.4	100,000,000	6,000	2.1	10,000,000
Alabama ...	262,901	109,645	41.7	600,000,000	5,072,037	1.9	100,000,000	147,000	55.9	100,000,000	4,000	1.5	10,000,000
Mississippi..	274,382	109,645	39.9	600,000,000	5,072,037	1.8	100,000,000	147,000	53.6	100,000,000	4,000	1.5	10,000,000

TABLE IV.—FARM OCCUPANCY IN CERTAIN SOUTHERN STATES.

States.		All Farms.	Farms Operated by																Per cent. of all Farms.	
			Owners.	Tenants.		Per Cent. of all Farms.			White Farmers.				Colored Farmers.							
				Cash.	Share.	Owners.	Tenants.		Total.	Owners.	Tenants.		Total.	Owners.	Tenants.				White.	Colored.
							Cash.	Share.			Cash.	Share.			Cash.	Share.				
Total for the group	1910	1,947,684	960,729	$385,990	600,965	49.3	19.8	30.9	1,289,339	811,494	$143,841	334,004	658,345	149,235	$242,149	266,961			66.2	33.8
	1900	1,675,882	866,903	342,514	466,465	51.7	20.4	27.8	1,140,062	741,490	123,026	275,546	535,820	125,413	219,488	190,919			68.0	32.0
	1890	1,247,804	746,035	187,466	314,303	59.8	15.0	25.2												
	1880	1,078,355	671,823	138,985	267,547	62.3	12.9	24.8												
Kentucky	1910	259,185	171,325	15,260	72,600	66.1	5.9	28.0	247,455	165,356	14,658	67,441	11,730	5,969	602	5,159			95.5	4.5
	1900	234,667	157,602	16,776	60,289	67.2	7.1	25.7	223,429	152,137	15,987	55,305	11,238	5,465	789	4,984			95.2	4.8
	1890	179,264	134,529	14,524	30,211	75.0	8.1	16.9												
	1880	166,453	122,426	16,824	27,203	73.6	10.1	16.3												
Tennessee	1910	246,012	144,951	29,930	71,131	58.9	12.2	28.9	207,704	134,200	18,129	55,375	38,308	10,751	11,801	15,756			84.4	15.6
	1900	224,623	133,483	28,348	62,792	59.4	12.6	28.0	190,728	123,975	17,439	49,314	33,895	9,508	10,909	13,478			84.9	15.1
	1890	174,412	120,622	19,762	34,028	69.2	11.3	19.5												
	1880	165,650	108,454	19,266	37,930	65.5	11.6	22.9												
Virginia	1910	184,018	135,289	14,049	34,680	73.5	7.6	18.8	135,904	102,881	9,631	23,392	48,114	32,408	4,418	11,288			73.9	26.1
	1900	167,886	116,290	16,649	34,947	69.3	9.9	20.8	123,052	89,486	9,758	23,808	44,834	26,804	6,891	11,139			73.3	26.7
	1890	127,600	93,311	11,985	22,304	73.1	9.4	17.5												
	1880	118,517	83,531	13,392	21,594	70.5	11.3	18.2												
North Carolina	1910	253,725	146,438	25,039	82,248	57.7	9.9	32.4	188,069	124,921	13,430	49,718	65,656	21,517	11,609	32,530			74.1	25.9
	1900	224,637	131,629	19,916	73,092	58.6	8.9	32.5	169,773	113,988	9,585	46,200	54,864	17,641	10,331	26,892			75.6	24.4
	1890	178,359	117,469	10,572	50,318	65.9	5.9	28.2												
	1880	157,609	104,887	8,644	44,078	66.5	5.5	28.0												
South Carolina	1910	176,434	65,213	56,255	54,966	37.0	31.9	31.2	79,636	44,710	15,625	19,301	96,798	20,503	40,630	35,665			45.1	54.9
	1900	155,355	60,471	57,046	37,838	38.9	36.7	24.4	69,954	41,321	14,612	14,021	85,401	19,150	42,434	23,817			45.0	55.0
	1890	115,008	51,428	31,913	31,667	44.7	27.8	27.5												
	1880	93,864	46,645	21,974	25,245	49.7	23.4	26.9												
Georgia	1910	291,027	100,047	82,387	108,593	34.4	28.3	37.3	168,468	84,226	31,908	52,334	122,559	15,821	50,479	56,259			57.9	42.1
	1900	224,691	90,131	58,750	75,810	40.1	26.2	33.7	141,865	78,548	24,022	39,295	82,826	11,583	34,728	36,515			63.1	36.9
	1890	171,071	79,477	29,413	62,181	46.4	17.2	36.4												
	1880	138,626	76,451	18,557	43,618	55.1	13.4	31.5												
Alabama	1910	262,901	104,575	88,546	69,780	39.8	33.7	26.5	152,458	87,441	24,213	40,804	110,443	17,134	64,333	28,976			58.0	42.0
	1900	223,220	94,346	74,330	54,544	42.3	33.3	24.4	129,137	80,164	18,118	30,855	94,083	14,182	56,212	23,689			57.9	42.1
	1890	157,772	81,141	38,931	37,700	51.4	24.7	23.9												
	1880	135,864	72,215	22,888	40,761	53.2	16.8	30.0												
Mississippi	1910	274,382	92,891	74,524	106,967	33.9	27.2	39.0	109,645	67,759	16,247	25,639	164,737	25,132	58,277	81,328			40.0	60.0
	1900	220,803	82,951	70,699	67,153	37.6	32.0	30.4	92,124	61,871	13,505	16,748	128,679	21,080	57,194	50,405			41.7	58.3
	1890	144,318	68,058	30,366	45,894	47.2	21.0	31.8												
	1880	101,772	57,214	17,440	27,118	56.2	17.1	26.7												

TABLE V.

EXTENT OF TENANCY IN CERTAIN STATES OF THE UNITED STATES, 1910.

Percentage Groups for all Tenants.

Under 10 Per Cent.			10 and Under 20 Per Cent.			20 and Under 30 Per Cent.		
States.	Rate.	Number of Farms.	States.	Rate.	Number of Farms.	States.	Rate.	Number of Farms.
	.....	17,832		.....	99,465		.....	347,971
Connecticut	9.8	2,632	Colorado	18.2	8,390	Missouri	29.9	82,958
Arizona	9.3	861	Rhode Island	18.0	954	Maryland	29.5	14,416
Montana	8.9	2,344	Michigan	15.8	32,689	Ohio	28.4	77,188
Wyoming	8.2	897	Oregon	15.1	6,859	Florida	26.7	13,342
Massachusetts	8.1	2,979	North Dakota	14.3	10,664	Virginia	26.5	48,729
Utah	7.9	1,720	Wisconsin	13.9	24,654	New Jersey	24.8	8,294
New Hampshire	6.9	1,879	Washington	13.7	7,726	South Dakota	24.8	19,231
New Mexico	5.5	1,957	Nevada	12.4	333	Pennsylvania	23.3	51,105
Maine	4.3	2,563	Vermont	12.3	4,008	Minnesota	21.0	32,811
			Idaho	10.3	3,188	New York	20.8	44,872
						California	20.6	18,148
						West Virginia	20.5	19,835

30 and Under 40 Per Cent.			40 and Under 50 Per Cent.			Over 50 Per Cent.		
States.	Rate.	Number of Farms.	States.	Rate.	Number of Farms.	States.	Rate.	Number of Farms.
	.....	432,543		.....	311,262		.....	1,139,603
District of Columbia	38.7	84	No. Carolina	42.3	107,287	Mississippi	66.1	181,491
Nebraska	38.1	49,441	Delaware	41.9	4,535	Georgia	65.6	190,980
Iowa	37.8	82,115	Illinois	41.4	104,379	So. Carolina	63.0	111,221
Kansas	36.8	65,398	Tennessee	41.1	101,061	Alabama	60.2	158,326
Kentucky	33.9	87,860				Louisiana	55.3	66,607
Indiana	30.0	64,687				Oklahoma	54.8	104,137
						Texas	52.6	219,575
						Arkansas	50.0	107,266

TABLE VI.

VALUE OF ALL FARM PROPERTY AND OF EACH CLASS, FOR SELECTED SOUTHERN STATES, 1860–1910.

States.	Year.	Values of Farm Property.			
		Total.	Land and Buildings.	Implements and Machinery.	Live Stock.
Total for the group	1910	$4,318,228,067	$3,539,172,921	$146,953,744	$632,111,402
	1900	2,135,185,256	1,710,146,593	84,184,655	340,854,008
	1890	1,875,024,677	1,517,092,887	55,038,034	302,893,756
	1880	1,485,708,860	1,210,257,762	47,557,827	227,893,271
	1870	1,136,993,106	888,030,746	32,335,788	216,626,571
	1860	2,048,434,496	1,653,703,879	58,489,179	336,241,438
Kentucky	1910	773,797,880	635,459,372	20,851,846	117,486,662
	1900	471,045,856	382,004,890	15,301,860	73,739,106
	1890	428,170,266	346,339,360	10,906,506	70,924,400
	1880	358,703,832	299,298,631	9,734,634	49,670,567
	1870	308,879,324	248,991,133	6,858,317	53,029,874
	1860	360,839,765	291,496,955	7,474,573	61,868,237
Tennessee	1910	612,520,836	480,522,587	21,292,171	110,706,078
	1900	341,202,025	265,150,750	15,232,670	60,818,605
	1890	312,891,650	242,700,540	9,936,880	60,254,230
	1880	259,456,170	206,749,837	9,054,863	43,651,470
	1870	225,621,847	174,994,997	6,559,590	44,067,260
	1860	340,036,202	271,358,985	8,465,792	60,211,425
Virginia	1910	625,065,383	532,058,062	18,115,883	74,891,438
	1900	323,515,977	271,578,200	9,911,040	42,026,737
	1890	294,488,569	254,490,600	6,593,688	33,404,281
	1880	247,476,536	216,028,107	5,495,114	25,953,315
	1870	196,906,040	170,416,676	3,939,229	22,550,135
	1860	327,076,081	284,236,574	7,419,138	35,420,369
North Carolina	1910	537,716,210	456,624,607	18,441,619	62,649,984
	1900	233,834,693	194,655,920	9,072,600	30,106,173
	1890	216,707,500	183,977,010	7,183,210	25,547,280
	1880	164,286,737	135,793,602	6,078,476	22,414,659
	1870	83,429,729	62,568,866	3,265,689	17,595,174
	1860	180,305,812	143,301,065	5,873,942	31,130,805
South Carolina	1910	392,128,314	332,888,081	14,108,853	45,131,380
	1900	153,591,159	126,761,530	6,629,770	20,199,859
	1890	119,849,272	99,104,600	4,172,262	16,572,410
	1880	84,079,702	68,677,482	3,202,710	12,199,510
	1870	47,628,175	35,847,010	1,826,357	9,954,808
	1860	169,738,630	139,652,508	6,151,657	23,934,465
Georgia	1910	580,546,381	479,204,332	20,948,056	80,393,993
	1900	228,374,637	183,370,120	9,804,010	35,200,507
	1890	189,249,198	152,006,230	5,764,978	31,477,990
	1880	143,158,308	111,910,540	5,317,416	25,930,352
	1870	103,464,389	75,647,574	3,691,760	24,125,055
	1860	202,289,924	157,072,803	6,844,387	38,372,734
Alabama	1910	370,138,429	288,253,591	16,290,004	65,594,834
	1900	179,399,882	134,618,183	8,675,900	36,105,799
	1890	146,339,765	111,051,390	4,511,645	30,776,730
	1880	106,531,307	78,954,648	3,788,978	23,787,081
	1870	78,172,844	54,191,229	2,629,539	21,352,076
	1860	226,669,511	175,824,622	7,433,178	43,411,711
Mississippi	1910	426,314,634	334,162,289	16,905,312	75,247,033
	1900	204,221,027	152,007,000	9,556,805	42,657,222
	1890	167,328,457	127,423,157	5,968,865	33,936,435
	1880	122,016,268	92,844,915	4,885,636	24,285,717
	1870	92,890,758	65,373,261	3,565,307	23,952,190
	1870	92,890,758	65,373,261	3,565,307	23,952,190
	1860	241,478,571	190,760,367	8,826,512	41,891,692

TABLE VII.

AVERAGE VALUE OF ALL FARM PROPERTY AND OF EACH CLASS, FOR SELECTED SOUTHERN STATES, 1860-1910.

States.	Year.	Average Value of							
		All Property.		Land and Buildings.		Implements and Machinery.		Live Stock.	
		Per Farm.	Per Acre.	Per Farm.	Per Acre.	Per Farm.	Per Acre.	Per Farm.	Per Acre.
Total for the group	1910....	$2,217	$26.34	$1,817	$21.59	$75	$0.90	$325	$3.86
	1900....	1,274	13.00	1,021	10.41	50	.51	203	2.07
	1890....	1,503	11.78	1,216	9.53	44	.35	243	1.90
	1880....	1,378	9.37	1,122	7.63	44	.30	211	1.44
	1870....	1,720	8.12	1,343	6.34	49	.23	328	1.55
	1860....	4,066	12.68	3,283	10.23	116	.36	667	2.08
Kentucky	1910....	2,986	34.87	2,452	28.64	80	.94	452	5.29
	1900....	2,007	21.43	1,628	17.38	65	.70	314	3.35
	1890....	2,388	20.00	1,932	16.17	61	.51	395	3.31
	1880....	2,155	16.69	1,798	13.92	58	.45	298	2.31
	1870....	2,608	16.55	2,103	13.34	58	.37	448	2.84
	1860....	3,973	18.83	3,210	15.21	82	.39	681	3.23
Tennessee	1910....	2,490	30.56	1,953	23.98	87	1.06	450	5.52
	1900....	1,519	16.77	1,180	13.03	68	.75	271	2.99
	1890....	1,794	15.22	1,392	12.04	57	.49	345	2.99
	1880....	1,566	12.55	1,248	10.00	55	.44	264	2.11
	1870....	1,910	11.52	1,481	8.94	56	.33	373	2.25
	1860....	4,128	16.45	3,294	13.13	103	.41	731	2.91
Virginia	1910....	3,397	32.06	2,891	27.29	98	.93	407	3.84
	1900....	1,927	16.25	1,618	13.64	59	.50	250	2.11
	1890....	2,308	15.41	1,994	13.32	52	.35	262	1.75
	1880....	2,088	12.48	1,823	10.89	46	.28	219	1.31
	1870....	2,666	10.85	2,308	9.39	53	.22	305	1.24
	1860....	5,256	16.18	4,567	14.06	119	.37	569	1.75
North Carolina	1910....	2,119	23.96	1,800	20.35	73	.82	247	2.79
	1900....	1,041	10.28	867	8.56	40	.40	134	1.32
	1890....	1,215	9.57	1,031	8.12	40	.32	143	1.13
	1880....	1,042	7.35	862	6.07	39	.27	142	1.00
	1870....	892	4.21	669	3.15	35	.16	188	.89
	1860....	2,398	7.59	1,906	6.03	178	.25	414	1.31
South Carolina	1910....	2,223	29.09	1,887	24.64	80	1.04	256	3.34
	1900....	989	10.98	816	9.06	43	.47	130	1.44
	1890....	1,042	9.09	862	7.52	36	.32	144	1.26
	1880....	896	6.25	732	5.10	34	.24	130	.91
	1870....	918	3.93	691	2.96	35	.15	192	.82
	1860....	5,117	10.48	4,210	8.62	185	.38	722	1.48
Georgia	1910....	1,995	21.54	1,647	17.78	72	.78	276	2.98
	1900....	1,016	8.65	816	6.95	44	.37	157	1.33
	1890....	1,106	7.51	889	6.03	34	.23	184	1.25
	1880....	1,033	5.50	807	4.30	38	.20	187	1.00
	1870....	1,479	4.38	1,081	3.20	53	.16	345	1.02
	1860....	3,263	7.59	2,533	5.89	110	.26	619	1.44
Alabama	1910....	1,408	7.85	1,096	13.90	62	.79	250	3.16
	1900....	804	8.67	603	6.51	39	.42	162	1.75
	1890....	928	7.37	704	5.59	29	.23	195	1.55
	1880....	784	5.65	581	4.19	28	.20	175	1.26
	1870....	1,160	5.23	804	3.62	39	.18	317	1.43
	1860....	4,112	11.86	3,189	9.20	135	.39	787	2.27
Mississippi	1910....	1,554	22.97	1,218	18.01	62	.91	274	4.05
	1900....	925	11.20	688	8.33	44	.52	193	2.34
	1890....	1,159	9.52	883	7.25	41	.34	235	1.93
	1880....	1,199	7.70	912	5.86	48	.31	239	1.53
	1870....	1,366	7.08	961	4.98	52	.27	352	1.83
	1860....	5,637	15.25	4,452	12.04	206	.56	978	2 64

SOUTHERN AGRICULTURE AND THE NEGRO FARMER.*

By H. B. Frissell, L.L.D., *Hampton Institute.*

Doctor Coulter deserves the appreciation of those who are interested in the rural conditions in the South for the valuable historical statement of the changes which have taken place in the method of farming in the South. We have in his tables and in his discussion a statistical measure of changes which have been known to us in a general way for a long time. We have realized that the large farms, particularly those that had the plantation form, were gradually being divided into smaller tracts. Of course the extent of this subdivision into small farms is somewhat influenced as Doctor Coulter indicates by the changing definitions of the farm from census to census, and particularly the change which took place between 1890 and 1900. The census enumerators, up to 1900, had the following phrase before them as a part of the farm definition: "A farm is what is owned or leased by one man and cultivated under his care." There were other elements in this definition, however, which tended to make it more in harmony with the present one, but the incorporation of the sentence just quoted with the general idea of the "farm" prevailing in the South tended to lay more stress upon the large plantation areas and less stress upon the component tenant groups. In 1900, the census definition of the farm made it quite clear that any area greater than three acres under the direction of one man was to be regarded as a farm, regardless of the fact that it was a part of a plantation, where there was more or less central management. This emphasis upon the tenant unit, as Doctor Coulter states, led to an unfortunate omission of the activities of the plantation owner who lived upon his plantation or who exercised considerable supervision over the tenants cultivating his land. The 1910 census is to be commended for its effort to give proper recognition to the ability and to the energy of the many plantation

*Discussion of Doctor Coulter's paper on "The Rural South," Washington, D. C., December 28, 1911.

owners who are yet making large contributions to the success of Southern agriculture. It is to be hoped that future censuses will follow the lead of the present effort, so that every plantation owner, who increases the efficiency of his tenants, through his supervision, will be properly recorded in the census returns.

This recognition of the contribution of the plantation owner and manager to Southern agriculture is not to be interpreted as a denial of the status of *farmer* to the plantation tenant. There seems to be a tendency in this direction in certain quarters. I am not sure but that Doctor Coulter's stress upon the fact that the tenant system is a substitute for the wage system in the North is an indication that he inclines to believe this. I refer to such a statement as the following: "Change was made to a system under which each laboring family instead of being hired at a definite wage was assigned to a piece of land and given part of the crop as compensation for his labor."

While it is unfair to deny recognition of the contribution made by the plantation owner and manager, it would be equally unfair to put all Negro tenants into one large class and to regard them as practically a modified form of the wage system. Doctor Coulter does not make clear his position on this point. He neither affirms nor denies that the plantation tenant is practically the same as the wage hand. My own study of the tenant system in the South leads me to believe that it is very important for us to recognize the varying classes of tenants. In general they can be divided into the two large groups of *share croppers* and *renters*. The share cropper, as he is usually known in the South, is only one stage removed from the wage hand. The renter, on the other hand, is considerably above the wage hand and approximates the economic status of the tenant farmer as he is known in other parts of the country. In order to understand the economic status of the Negro tenant, it is necessary for us to have a clearer recognition of these two classes of tenants. The total number of Negro farmers in the Southern States for 1910 is 890,141, of these 285,950, or 32 per cent., were cash tenants and 384,524 were share tenants. The cash tenants form 32 per cent. of all the Negro farmers. The cash tenants plus the owners

form 56.6 per cent. of all Negro farmers, leaving 43.2 per cent. as the proportion of share tenants. We are not to infer from this, however, that 43 per cent. of the Negro tenants were share croppers. Unfortunately the census tenure terminology has not made it possible to distinguish the two classes of share tenants, namely, those who share one third and one fourth and those who share one half. In the South the share tenant who gives less than one half of his crops for the use of the land is quite apt to supply his own mule and implements and therefore to be grouped with the renter; in other words, using the census terminology, with the cash tenants, even though we regard the cash tenants as the only independent renters, we have at least one third of all the Negro farmers of the South who belong to the independent renter type. If we could determine the proportion of the 384,000 share tenants who pay less than one half of their crops for their farms, the number of independent renters could be very much increased. Considering the remaining share cropper, for the moment, it should be borne in mind that even this class has moved forward from the condition of the wage hand. Unfortunately the census has not yet published the 1910 statistics which show the status of these varying classes of tenants as regards possession of animals and implements. I can therefore indicate to you the status of these farming types only by taking typical examples. A very interesting study bearing on this subject has been made by a reliable student* in Macon County, Alabama.

The following extracts describe the various grades of these farm workers:

Share-hand. J. T. Walker of the Marshall Farm community in Macon County, who, while working as a monthly-wage hand wished to test his ability in operating a small farm. He secured a plot of ground from his employer, which he worked at odd times while keeping up his regular work as a monthly-wage hand. He made a very good cotton and corn crop on his small farm. His experiment was so successful that he gained confidence in himself, and the following year, contracted to work on halves, or as a share-cropper.

The cropper who works under a plantation system with thirty or forty other families is subjected to the system in

*T. J Edwards of Tuskegee Institute, in *Southern Workman* for August, September, and October, 1911

vogue upon that plantation. The landlord employs a rider whose duty it is to supervise all work on the plantation. The rider dictates the number of acres to be planted in certain crops, the amount of fertilizer to be used, and when and where to plant. The cropper rises at four in the morning at the beating of a piece of steel which serves as a bell, and works until midday. If his wife goes to the field she leaves about eleven o'clock to prepare dinner. On very hot days two hours are taken for dinner and rest. No work is done on Saturday afternoons. Crops are harvested and divided by the cropper, who sells his share to the landlord after deductions are made for expenses. This type of cropper is found in south Macon County.

The cropper who farms apart from a plantation is of course free from plantation supervision. He is more aggressive and trustworthy than the cropper described above, and is left largely in charge of his own farming affairs. He may have been a renter and because of some misfortune or inconvenience prefers workings "on halves" until he is sufficiently prosperous to rent again. If he owns a mule the landlord rents the mule and the cropper works him. If the cropper has feed the landlord pays for what the mule consumes. Crops are divided in the usual way.

The cropper who after two or three years is prosperous enough to buy or partly buy a mule, has farming implements, feed for this stock, a wagon and buggy, a cow, and a few hogs and chickens, is in a position to join the renting class.

Renter. Anderson Chiles of Dollington Community, after working on shares two years, started renting by buying a mule at $135, paying $35 down, the remaining $100 to be paid in 12 months at 15 per cent interest. He also had 1 milch cow, 4 hogs, 35 gallons of syrups, 700 bundles of fodder, 50 bushels of cotton seed, 75 bushels of sweet potatoes, 2,000 stalks of seed cane, and $15 in cash.

The following is the history of Harrison White, a renter of Tysonville, Macon County, Alabama, and his ten years' struggle to get money to start buying land. In 1901 he farmed with one plow, paid himself out of debt, and cleared $200; in 1902 he continued farming with one plow and came out $175 behind; in 1903 he came out $388 behind; in 1904 he ran one plow, made 13½ bales of cotton, paid up back debts, and made 250 bushels of corn; in 1905, to make a crop, he bought an ox to supplement his overworked horse. He paid his debts and cleared $380. He paid $35 for a wagon, $60 for a buggy, $55 for a sewing machine, and $45 for furniture; in 1906 he bought a mule on time for $225, and came out $190 behind; in 1907 he paid off $190 with interest, bought another mule,

and saved $200; in 1908 he saved 3 bales of cotton and much corn; in 1909 he paid out and cleared one bale of cotton; and in 1910 he paid all debts and banked $300 to invest in buying land.

Landowner. The landowners of Macon County are active workers in the interest of the public schools of their communities. Two gave an acre of land each, upon which schoolhouses were built. Three sold property for school purposes at half price. The landowners usually order material and make contracts in case schoolhouses are to be built. They furthermore give much free labor, such as hauling lumber and working upon school buildings. They usually board the teachers and care for the preachers who come into their communities.

In the farmers' organizations the landowners are usually leaders. The landowning preacher, teacher, and church officer are more honored by their followers than those who own no land. Delegates from Macon County local organizations to the Tuskegee Annual Negro Conference are mostly landowners. In towns where they buy goods the inducements to get their trade are abundant.

No people treasure their property more highly than the landowning colored people, and the inclination to dispose of it is exceedingly small. On the contrary, the inclination to become larger landholders is very much greater than the disposition to sell or mortgage property.

The conclusions stated in Mr. Edwards' articles are substantiated by the 1900 census returns as far as the terms "cash" and "share tenants" distinguish these classes. I am quite sure from some preliminary figures that have been worked out for the 1910 census that we shall find the owners at the head in value of house, in value of animals, and in the number of years on one farm. The class next in rank to the owner is the cash tenant, together with the share one third and one fourth which form the total group of independent renters. The tenant who is lowest in rank as regards these possessions is the share-one-half or share-cropper type. The point, then, which I desire to emphasize in connection with Doctor Coulter's statement that the tenant system in the South is a substitute for the hired labor system in the North, is that the tenant classes are not to be regarded as having the same economic status as the hired labor in the North. While it is true that the share-cropper group is only slightly removed from the

wage hand, there is considerable difference between the wage hand and the independent renter. In this connection I desire to emphasize also the fact that the large movement of the Negro wage hand into the share-cropper class is one of the very striking evidences of the progress of the Negro race. To be sure, we must grant that the definition of the farm did help to swell the increase of Negro farmers from 1890 to 1900. Such influence has but very little to do, however, with the increase of farmers from 1900 to 1910. The increase of Negro farmers from 1900 to 1910 in my opinion is an indication of the forward movement of the Negro wage hand into the farmer class. You will remember that the increase of the Negro farmers in the states considered by Doctor Coulter is 22 per cent. as against 13 per cent. for the whites. Whether this movement makes for better cultivation of the soil or not, the fact remains that the Southern white farmer has been willing to give the Negro increasing independence in his farm activities.

One other point of minor importance is Doctor Coulter's reference to the increase of Negro owners in comparison with white owners. Doctor Coulter says, "On the other hand the increase in number of owners was 93,826 and of these 70,004, or 74.6 per cent., were white and *only* 23,822, or 25.4 per cent., were Negroes." I desire to emphasize the fact that in order to get a more accurate measure of the progress which the Negroes have made in ownership, Doctor Coulter should have added that the percentage in increase for the Negroes was 18 per cent. as against 9.4 per cent. for the whites. It is desirable in measuring the progress of any people that they be compared with their own previous condition as well as with the status of another group.

RURAL LIFE IN THE SOUTH.*

By E. C. Branson, A.M., *President State Normal School, Athens, Georgia*

Down South we know about political reconstruction—somewhat. We do not know so much about the economic reconstruction the Southern States have been undergoing these last fifty years. We ought to know more about the economic causes, drifts, and tendencies that have been making and shaping our history the last half-century. Their significance reaches fatefully into our future. An ounce of sound economics is worth more to us now than a whole ton of partisan politics.

It took the South twenty years to get back into use farm land equal to the cultivated area of 1860, and another twenty years to recover her farm values in full—a long, bewildering period of readjustment, hardship and struggle in our farm regions. And thus in 1900 the rural South began again, forty years late, with a total gain of only 4 per cent. in her farm values, against 156 per cent. for the whole country during this period. But in the next ten years, the South doubled her farm values. One state nearly trebled them, while all of the Southern States ran well ahead of the average for the entire country, except in farm machinery. This economic reconstruction of the rural South may well be called the greatest event of its sort in history.

Look at the changed conditions. Farm labor passed from compulsion into freedom of contract, and farm owners from wealth and comfort into poverty and distress. The half million plantations of 1860 (in the old South east of the Mississippi) were broken into small farms, two million in number. One million of these are now cultivated, or, as Henry Wallace says, are "mined" by tenants, one third of them being cash tenants and two thirds, share tenants. The other million farms are cultivated by owners, four fifths white and one fifth black. Such in brief, and in round numbers, is Doctor Coulter's exhibit of the revolutionary changes in the land

*Discussion of Doctor Coulter's paper on "The Rural South," Washington, D. C., December 28, 1911.

tenure and farm labor systems of the South during the half century.

When you consider that in the recent census decade Southern cotton growers created a wealth greater, by more than a billion dollars, than the output of the gold and silver mines of the entire world during this period, you will agree, perhaps, that here are marvels of patience and power as well as marvels of soil and climate.

There is no longer any doubt about the industrial future of the South. It is just as wonderful as Abram S. Hewett and Judge Kelley long ago predicted. But the agricultural possibilities are just as wonderful. The opportunities for development that Doctor Knapp and Secretary Wilson have written about so often and so spiritedly are here, in very truth.

Doctor Coulter shows that we have comfortable room for twice the present number of farmers. May I add that the winters are short and mild. Water and timber are everywhere abundant. The range and variety of soil and climate make diversified farm activities possible and profitable. The South, not the Middle West, is the native home of the corn plant. Our boys in the Corn Clubs easily raise a hundred bushels to the acre, at a cost of less than 25 cents per bushel. Yields of more than 200 bushels to the acre are fairly common. And as yet we have barely touched the possibilities of fruit and truck farming, stock breeding, and cattle growing. The South is indeed a land of promise.

But Doctor Coulter also shows that the bulk of farm tenancy in this country is in the South, where the farms cultivated by renters average one in every two—in Georgia and Mississippi, nearly two in every three; that farming by tenancy is rapidly increasing in Southern farm regions; and that as land values rise the tenant's chance to own his farm is a dwindling ratio.

It augurs ill for Georgia and Mississippi that, in the last thirty years, the farms cultivated by owners dropped from fifty-four and fifty-five, to thirty-four in the hundred in both states. The extent and the increase of farm tenancy in the South are alarming. In fifteen counties of Georgia, from 80

to 91 per cent. of the farms are operated by tenants; and in twenty counties of Mississippi from 80 to 96 per cent.

No efficient, satisfying rural civilization can be built upon farm tenancy and absentee landlordism. The effect of excessive farm tenancy upon country schools and churches is disastrous. The other day I stood in a country school in one of the best counties in Georgia. Twenty-one of the twenty-eight children were in this school this year for the first time. They were children of tenant farmers. The personnel of the attendants upon the school and the nearby church undergoes kaleidoscopic changes like this every year or two.

It is the same old story everywhere in regions abandoned to tenant farming. In the very nature of things these transient, migratory people lack abiding interest in progressive community enterprises and agencies. Farm tenancy alone largely explains the high illiteracy ratios of the Southern States. Many of these tenant farmers are industrious, law-abiding, good people, and a week's wage will still buy an acre of land in many counties of the South; nevertheless they crave freedom to move at sweet will and pleasure more than they crave farm and home-ownership.

Another significant economic tendency in the Southern farm life is exhibited in the paper under discussion. It is the fact that Negroes are resisting the lure of city life and sticking to the farm better than the whites. In every Southern state, except Kentucky, the white farmers are a lessening ratio. On the contrary, the Negro farmers in the South, except in Florida, Louisiana, and Texas, are a growing ratio. In South Carolina and Alabama the Negro population on the farm grew in the last census decade nearly twice as fast as the Negro population in general in these two states; more than twice as fast in Mississippi, and three and a half times as fast in Georgia.

On the other hand, there is the steady drift of white farm owners and white tenants cityward; the first for business opportunities and social advantages, and the last for work in the mills and factories. Thus the growth of urban population in Georgia was three and a half times, and in Mississippi it was five times, the growth of rural population. Negroes rent the vacated farms and remain in the country, and oftentimes

they move back into the country from the towns—a thing seldom true of the whites. Thus there are fourteen Mississippi counties in which the Negro farmers outnumber the white farmers five to one; in four of them, more than twenty-five to one; in one of them, nearly thirty to one.

And I may add, that the Negro is fast rising out of tenancy into ownership. In ten counties of Mississippi the farms cultivated by Negro owners outnumber the farms cultivated by white owners. But the increasing ownership of farms by Negroes throughout the South is a conspicuous fact, even when they are thinly scattered in white communities. The fact appears so uniformly upon the county tax digests in that it has ceased to be surprising. It means, of course, that the Negro is working out his own salvation upon an economic basis. It may be that he is traveling along a hard, difficult road; but in simple truth there seems to be no other way.

Doctor Coulter's paper closes with a look into the future, in a series of inquiries. They are tremendously important, but who can answer them with assurance? And yet exactly these questions have been answered in the course of history, in other states and countries.

Those of us who are struggling with the country life problem in the South believe that the culture of the farmer is more important than the farmer's agriculture; and that the farmer's home and children are more precious than the farmer's fields and crops.

Here are important questions that we face daily. Will the new industrial city civilization of the South bring about depletion and decay in our rural regions, as it has done elsewhere in America? Are we doomed to a one-crop civilization based on tenancy farming? Will the apparently permanent high prices of food stuffs tempt us into diversified farming? Or must the business of the South be repeatedly paralyzed by low-priced cotton before we can give ourselves to diversified farm activities? Or will we wait to take our lesson from the boll weevil, as Louisiana and Texas have done? Who can say?

One of the characters in Mrs. Abbott's new book, "The Sick-a-Bed Lady," says: "Up to the time he's thirty, no man has done the things he wants to do, but only the things that have

happened to come his way. He is forced into business to please his father, and cajoled into the Episcopal Church to please his mother, and bullied into red neckties to please sister Isabel. But having once reached the grown-up, level-headed, utterly independent age of thirty, a man's a fool who doesn't sit down deliberately and list out, one by one, the things that he wants and go ahead and get them."

Now, the South is grown-up, and level-headed enough to sit down and deliberately list out the things she needs for permanent well-being. She needs, first and most of all, to preserve sanely and safely the balance between her country life and her industrial civilization. To this end, she needs improved public highways, cross-country trams and telephones, modern conveniences and comforts in her country homes, applied science and labor-saving machinery on her farms, and new ideals and activities in her country schools and churches. But she must realize that none of these are possible to a civilization based upon landless, homeless, ignorant, unskilled labor; that civilization is bottomed on the home-owning, home-loving, home-defending instinct; and that her economic salvation depends upon a multiplied host of small farmers who till the land that they own, and own the land that they till. True, we can not go ahead and get all these things in a jiffy; but we can struggle toward these ends with fervent love of our motherland and with unyielding hope and courage.

The South has bravely set her hand to her task. Her agricultural colleges are achieving wonders. Her teacher training schools have been forced into a study of the country-life problems; because, population considered, the country school bulks big. It is 83 per cent. of the whole problem of public education in the South. Here, if anywhere in the world, ought to be really efficient courses in rural economics and sociology, in the colleges and universities. We shall doubtless have them in good time. In any event I dare to say that the South is not a "Sick-a-Bed Lady," but a strong man, ready and rejoicing to run a race.

RURAL CONDITIONS IN THE SOUTH.*

By William H. Glasson, *Trinity College, Durham, N. C.*

It is obvious that Doctor Coulter's valuable interpretation of Southern agricultural statistics affords a somewhat narrower basis for discussion than does the topic printed in the program, "Rural Conditions in the South." I shall first discuss some of the matters included in Doctor Coulter's paper and afterward present for consideration some rural conditions with which he has not attempted to deal.

The stress placed by Doctor Coulter upon the significance of the great increase in the valuation of farm property during the past decade in the group of Southern States under consideration leads me to make a suggestion with regard to the interpretation of these and similar property valuation statistics of the census of 1910. From 1860 to 1900 the census figures indicated an increase of the value of farm property in this group of Southern States of only 4 per cent. For the ten years from 1900 to 1910 the total valuation of farm property in these states more than doubled, increasing 102 per cent. This is on its face a very remarkable increase in valuation for the ten-year period as compared with the preceding forty-year period. I do not think, however, that this doubling of farm property valuations can be entirely attributed to the rapidity of agricultural progress in the South; but that it is in considerable part a result of the progressive depreciation of the gold dollar. Land prices have not been an exception in the general rise of prices. The same consideration should be in mind in comparing the increase of 156 per cent. in the value of farm property in the United States as a whole for the forty years 1860 to 1900 with the 100.5 per cent. increase for the ten years from 1900 to 1910. Agricultural progress has been great in the United States and in the South during the past decade, but not so great as comparisons of valuations in 1900 and 1910 might suggest.

Doctor Coulter brings out the fact that Negro farmers have

* Discussion of Doctor Coulter's paper on "The Rural South," Washington, D. C., December 28, 1911.

increased during the past decade at a greater rate than white farmers. The statistics also show—what Doctor Coulter did not point out—that Negro farm owners have been increasing in the South during the past decade at a greater rate than white farm owners. The increase of 70,000 white farm owners is 9.4 per cent. based on the number in 1900; the increase of 23,822 Negro farm owners is about 19 per cent. In Georgia Negro farm owners have increased in number 36.5 per cent. during the decade while white farm owners have increased only 7 per cent. Of all farms in Georgia 42.1 per cent. were operated by Negroes in 1910 as compared with 36.9 per cent. in 1900. Thus the Negroes have been gaining in the South both in farms operated and in farms owned.

To what is this gain of the Negro in the occupation of farming to be attributed? I hope that it is a token of increasing thrift and of increasing ability to maintain a foothold in the economic organization of the South. I should be pleased to feel that we have here evidence of the success of the work of Hampton, Tuskegee, and other similar institutions. I desire to suggest, however, another cause which must have contributed materially to check the increase of white farmers and to add to the number of Negro farmers; that is, the constant recruiting of the class of factory operatives from the white rural population of the South. The large cotton manufacturing industry of the South employs few Negroes. For years whites have been brought from the farming districts to the new and growing manufacturing centers. While the census shows many agricultural counties with stationary or declining population, the new cotton manufacturing towns have in general enjoyed large increases in population. It seems likely that Negro farmers have been taking the places of many white tenants and owners who have forsaken the farm for the mill.

Without further comment on Doctor Coulter's paper, I wish to say a few words about another phase of the rural conditions of the South. I refer to the work of the Rockefeller Sanitary Commission for the improvement of health conditions. This Commission was inaugurated late in 1909 primarily for the eradication of hookworm disease, but also to aid

in general sanitary progress in the South. It has an organization coöperating with the state board of health in most of the Southern States. I have not time to enter into details, but I wish to draw attention to three features of its work with some statement of the results thus far obtained.

An infection survey of the South by counties is being made to determine the degree of hookworm infection. This survey is based upon a microscopical examination of fecal specimens from at least 200 children between the ages of 6 and 18, inclusive, taken at random from the rural schools of each county. In my home state of North Carolina such an infection survey has been completed in 23 counties. The percentage of infection among the children examined in Wake County, in which the capital of the state is located, was 25. In Columbus County the infection percentage of 88 is so far the highest. Infection percentages thus obtained in five parishes of Louisiana range from 15.5 per cent. to 66.6 per cent. Doubtless many cases of infection are mild, and there may be hookworm carriers as well as "typhoid carriers." Since infection commonly occurs through the skin of the feet in contact with polluted soil, I think that a much higher rate will be found among barefooted school children than in the population in general.

Some writers believe that the hookworm disease was brought from Africa to America by the Negroes. In this connection a comparison made in the course of the infection survey of North Carolina is interesting. An examination of 2,092 white school children from various localities in eight counties of North Carolina showed an infection percentage of 34.1. In the same communities an examination of 1,337 colored school children showed only 15 per cent. infected. I do not care to draw a conclusion from a single comparison of this kind. It may in some minds cause doubt whether hookworm disease is peculiarly connected with Africa; others may see in the lower percentage of the Negro children only an indication of immunity against infection, gained after long contact with the disease.

A second line of work being carried on by the Rockefeller Commission is preventive in its nature. Since soil pollution by the afflicted causes the spread of hookworm disease, the

Commission has entered upon a campaign to improve sanitation in the rural districts. This will be equally valuable in lessening the prevalence of typhoid and other filth diseases. As a preliminary step, a sanitary survey of the South by counties is being made. This survey is based on the inspection of conditions at not less than 200 country homes in each county. Standards have been agreed upon by which a percentage value can be given to the typical sanitary conditions found at the rural homes, and a sanitary index can be computed for the county. A knowledge of comparative conditions is sought in order to stimulate zeal for improvement and to enable progress to be measured. In North Carolina sanitary surveys have been completed in 45 counties. The sanitary conditions disclosed are so poor that there is in some quarters reluctance to have the results published.

The most recent development in the campaign against the hookworm is the establishment of free county dispensaries for the treatment of the disease. Such dispensaries were some years ago established and successfully operated by the Porto Rico Anemia Commission in the campaign against hookworm in that island. During the present year they have been inaugurated, in Mississippi, Alabama, and North Carolina with highly satisfactory results.

In North Carolina this work has been undertaken since July 1 and has been supported by joint appropriations by the Boards of County Commissioners, the state, and the Rockefeller Commission. Each dispensary is conducted by a physician in charge and a microscopist. During the first thirty dispensary days 12,500 treatments were administered. So far 25 counties in North Carolina have made provision for the conduct of these free dispensaries, and the dispensaries are being operated simultaneously in series of five counties. The people assembling at the dispensaries, in addition to being examined and treated, hear lectures and information on sanitation and the prevention of disease. At last reports 22,333 cases had been treated since July 1 in dispensaries, and over 24,000 cases have been treated by physicians of the state.

THE RURAL SOUTH.*

By W. E. B. DuBois, Ph.D., *Editor of the Crisis Magazine.*

One may readily admit most of the favorable signs of advance in the rural South and yet see grave causes for disquietude. Contrary to the unfaltering and reiterated statements of many people that the Negro is too lazy and inefficient to work steadily or to save, every succeeding census gives more and more unanswerable evidence that the accumulation of landed property in the hands of black folk is increasing with great rapidity in the face of great difficulties. The figures at present obtainable indicate that between 1890 and 1910 the Negro farm owners increased nearly 90 per cent., and that the value of their holdings in that same period has considerably more than doubled. If we leave out of account all Negroes in the South except those who own land, we find that these alone have become an economic force that must be reckoned with. In South Carolina, for instance, not only are most of the farms run by Negroes but 25 per cent. of the actual owners are black.

Now, it is full easy in the face of these encouraging, or, to some, discouraging, facts, to adopt the complacent and even congratulatory tone evidenced in this discussion tonight. With peculiarly American philosophy, we seem to say, as we have in the past so often said, all is well because we are making money and making it fast.

It seems to me, however, that if there ever was a time or a place where it was the duty of an organization like this to sound a note of sharp warning, it is in the face of the present situation in the rural South.

In the midst of a whirling rush of economic development for the last twenty years, which is astonishing even according to American standards, any student of economics knows that the South of today is committing nearly every economic heresy which the whole history of modern industrial development warns nations to avoid and warns them forcibly, and even passionately.

*Paper read at the joint meeting of the American Economic Association and the American Statistical Association, Washington, D. C., December 28, 1911.

What are the things that modern industry has learned to insist upon? They are, I take it: (1) The personal freedom of the laborer; (2) the education of the masses; (3) the equality of employer and employee before the law; (4) the impartiality of the courts; and (5) the right of the governed to share in their own government.

In the South, and particularly in the rural South, every one of these fundamental postulates is being violated, and not only violated, but on those violations there is being built a philosophy of industry and life which is self-contradictory and fatal to the development of the broad principles of industrial democracy. I have great sympathy with those amiable souls, who, knowing this to be true, believe that present policy demands silence or even glossing over the plain facts. I say I have sympathy with such folk, but I am compelled to remember that in the great past the inexorable decrees of truth have held as strongly against the flatterer and the so-called optimist as against the pessimist and the liar.

Every one is, of course, aware that the reason that the South is building industry so largely on compulsory labor, ignorance, discrimination in the courts, lack of organized justice, and disfranchisement is because these weapons are excused by the Negro problem. Permit me to remind the supporters of this argument of two things: first, if they are relying on these ancient and mediæval weapons to keep all Negroes down, the figures presented here show how futile their efforts are; second, if they think that the black man is the only sufferer under this policy, they are destined to add to the future an industrial error far greater than that of the past.

To illustrate this, let me point out that the practice of peonage in the rural South where not less than a quarter of a million black laborers are held to service on plantations by force in direct defiance of laws and wise industrial policy has been buttressed by a system of statutes and administration which applies to all rural labor, black and white, and which makes a body of legislation positively astonishing in its reactionary and mediæval aspect. The contract labor laws, the vagrancy laws, the permissible debt manipulation by book accounts, and the discredited "company stores system"

make a body of law which carries force and fraud on its very face and which covers a large part of the rural South. Where else in a modern industrial land could a girl of fourteen, accused by the landlord's bookkeeping of receiving an advance wage of $7 and of refusing to carry out farther her contract to pick cotton, be fined $75 or twelve months in the chain gang? Yet this is precisely the case that is today before the courts of Georgia, and this is the kind of victim that is being educated in crime all over the South. In every modern industrial system either the laborer has his unfinished product to dispose of, or if the capitalist retains it, the laborer is given a quit-claim in wages, which money is absolutely his. Yet in the rural South such wages are characterized as money "advanced" to the laborer, he is charged high interest on it, and the transaction is made the basis of a contract which not only puts the unfinished product under the control of the undertaker, but which in many cases even makes the laborer liable to criminal prosecution if he leaves his job and makes the capitalist the sole judge as to whether the contract is kept. To prove this I have merely to quote from a printed farm land lease published by the Brown Printing Company of Montgomery, Alabama.*

Said tenant further agrees that until the rent, and advancements, if any, are paid to the owner, to have all the cotton made on the premises during the term of this lease ginned at any ginnery or stored at any place in said county the owner may designate, and to turn over to the owner the receipts for each sale, to hold until paid.

Said tenant further agrees that if he violates the contract, or neglects, or abandons or fails (or *in the owner's judgment* violates this contract or fails) to properly work or cultivate the land early or at proper times, or in case he should become physically or legally incapacitated from working said lands or should die during the term of his lease, or fails to gather or save the crops when made, or fails to pay the rents or advances made by the owner, when due, then in case of any such failures, the owner is hereby authorized to take *full* possession of said premises, crops and improvements, in which event this contract may become void and cancelled at the *owner's option*, and all indebtedness by the tenant for

*Italics are mine.

advances or rent shall at once become due and payable to the owner who may treat them as due and payable without further notice to the tenant; and the tenant hereby agrees to surrender the quiet and peaceable possession of said premises to the owner at said time, in which event the owner is hereby authorized to transfer, sell or dispose of *all property thereon the tenant has any interest in*, and in order to entitle the owner to do so, it shall *not be necessary* to give any notice of any failure or violation of this contract by the tenant, the execution of this lease being sufficient notice of defalcation on the part of the tenant, and shall be so construed between the parties hereto, *any law, usage or custom to the contrary notwithstanding.*

This is by no means the worst form of farm contract daily enforced in the rural South. The successful carrying through of legislation and administration such as this, depends, of course, largely on ignorance on the part of the laborers.

I have followed with interest the campaign against ignorance in the South. Private sources have done much for the Negro in the past and public means are greatly forwarding white education in the present. Whatever efforts decrease the ignorance of either group are for the direct good of all. But let us not hasten too quickly to congratulate ourselves that the rural South has adopted a policy of universal intelligence. On the contrary, the Negro of the United States never had and has not now any common school system in the South by which the majority of his boys and girls could learn to read and write.

Today, fifty years after emancipation, only 37 per cent. of the Negro school population of the South is in school attendance and most of these are in the cities and towns. In the rural South today not one black child in four is in school and those in school are there, for the most part, but a few months in the year. The public school system for Negroes in the rural South is worse today than it was twenty years ago, with a smaller percentage of enrollment and a smaller proportion of teachers; and this is true despite local exceptions and laudable personal efforts.

Not only is there this deliberate attempt to keep the country Negro ignorant, but he is largely deprived of voice in his

own government or protection. Sixteen years ago in Lowndes County, Ala., there was scarcely a Negro landowner. The reason, of course, was that black folk were too shiftless. Two Northern women started not only a school, but a land buying scheme. As a result the colored settlers round about have bought 4,000 acres and paid $26,793 cash for the land. Also 630 additional acres are being bought, for which $2,023 has been paid and $6,165 has been paid as rent on the farm by people who did not purchase. In addition to this, $6,582 has been paid for new homes, making a grand total of $41,563 since 1895. Despite this, in this picture there is but one appalling menace.

In 1906, when I visited that county, not a single one of these fifty or more thrifty, striving men had been allowed to register and vote under the new disfranchising law, and even the Hampton graduate who directed the details of the land scheme had been disfranchised with the rest.

THE DECLINE IN RURAL POPULATION.*

By Benjamin H. Hibbard, Ph.D., *Expert Special Agent, Bureau of the Census.*

The alarm over the decrease in the rural population is nothing new. Xenophon complained that the Greeks loved the city rather than the village. Varro was sarcastic in his testimony that the Romans preferred the circus to the cornfield. The elder Mirabeau was eloquent in his recommendations of country life and pathetic in his delineation of the destiny of the farm people who moved to town. During the middle period in English history the politicians and poets lamented bitterly the exodus from country to town. But the movement went on for centuries. Even in America the question is not altogether new. It is brought forcibly to attention at this time because it is spread over more territory, and because it has proceeded at a little swifter pace in recent years than formerly. Yet the population of many of our country districts decreased considerably during the Civil War decade and has never since recovered the loss. In Iowa, a comparatively new state, the decrease in farm population began as early as 1875, and not a census has since been taken which has not shown fewer people in some of the counties.

The problem is by no means local in its present aspects. France is alarmed at the decline, widespread and persistent, in the number of people in her rural departments. A recent census disclosed an acceleration of this movement, and a body of scientists and philanthropists got together in a "Congress on rural depopulation." It has shown that one of the rich departments has been losing in population since 1851. Within fifty years following that date it lost about 12 per cent. But since 1901, a period of agricultural prosperity, the rate of loss has been 50 per cent. greater than was the annual rate for the preceding half century. For France as a whole the

*Paper read at the joint meeting of the American Economic Association and the American Statistical Association, Washington, D. C., December 28, 1911.

rural population during the sixty years between 1846 and 1906 decreased 16⅔ per cent.

In Germany the loss of people from the farm communities is a sore point with the agricultural party. They blame everybody else, the manufacturers, the railway administration, the countryman himself. The manufacturers hold out false inducements concerning pay; the government is culpable in that its railway service is designed to coax the agricultural laborer away from the land; the commuters' trains gather up thousands of villagers every morning and at a good rate of speed, and for a small fraction of one cent a mile, whirl them into the industrial centers where they work during the day, to be brought back in the same manner in the evening. They live in the country but their interests have all moved to town and like Lot, who "pitched toward Sodom," they are in danger of finding themselves swallowed up entirely by the city.

One of the concerns of England today is dearth of competent farm labor, and this trouble is put forward as an explanation of the poor use, or no use agriculturally, which is made of some of her farm land. But fret as they may the count from time to time shows fewer people in the village and on the farm, while London, Manchester and Birmingham are more populous at every invoice. Were it not for the situation in France and Germany with their much lauded protective tariff on farm products England would furnish a splendid "awful example" of the effect of free trade in rural life.

The size of the family in the country is no doubt smaller than it was a few decades ago; but the country has always had a surplusage of people. It has furnished the majority of prominent business men and professional men of the towns, and until it ceases to recruit the ranks of these callings, and makes use of its own children in its own community, the size of the family is not the limiting factor in the density of rural population. The real occasion of the thinning in the ranks is not lack of recruits, or excess of casualities; it is desertion. To change the figure, it is not due to the frequent visits of the undertaker or to the infrequent visits of the stork, but to the alienation of the affections of the new arrivals by city relatives. However, this is in the main justified by the economic status

of the two families. The city offers greater immediate inducements. The city more and more needs added workers; the country is learning to get along with fewer.

In two main sections of the country the rural numbers have shrunken. These are, first the East, New England and large parts of the Middle Atlantic States, especially rural New York; and, second, the greater part of the old settled districts of the two North Central divisions of states. This section includes a large area, equal approximately, to seven out of the twelve states, and, moveover, from the standpoint of present knowledge, much the most productive portion of this greatest of all agricultural empires.

In the first mentioned of these sections of the country the decline in rural population is accompanied by a decline in general agriculture. There are fewer farms than there were ten years ago, or twenty years ago. There are fewer cattle, horses, swine, and sheep; there are fewer acres of grain and hay. Taking as a sample eight counties in the state of New York in which the decrease of rural population has been greatest, it is found that the number of farms had decreased during the past ten years by 1,303, or 4.1 per cent. At the same time the average size of the farm has increased nearly four acres, yet the amount of improved land in farms decreased 100,000 acres, or 5 per cent. The number of cattle fell off 29,000, or 7.2 per cent. The number of horses decreased 1,317, or nearly 2 per cent, while the decrease in sheep and swine was still more pronounced. The outstanding exception is the situation respecting farm implements. Unfortunately there is no unit by which these can be counted, permitting us to say that the increase or decrease has been so much. We must rely mainly on value as the measure of growth in this class of farm property. During the long period of years the market values of farm implements decreased, and within the past decade, although they have increased in value, the increase is small, much less than that in farm produce, hence, the increased values reported from decade to decade, ought, in order to give a true picture of the growth of this class of property, to be increased for comparative purposes enough to offset the shrinkages which in reality have occurred.

However, the eight counties of New York under consideration show an increase of 47.6 per cent. in the value of farm implements. At the same time the number of work horses per thousand acres of improved land increased a little. Thus the men have decreased in numbers but their power to do work has increased considerably. Possibly there is left on the farms a dearth of good help,—the cry is always that such is the case,—but at least those who remain are getting greater results per man than was ever before gotten. The occasion for deserting the farm is not a simple one. Probably the relative attractiveness of city and country, the former with its offer of two dollars pay for a day of ten hours, in contrast to the one dollar to one and a half dollars in the country for twelve or more hours, has played its part. Again city employment is much more nearly constant throughout the year. On the farms men are usually hired for something less than a full year, often for only eight or nine months, and they are unable to find profitable employment for the balance of the time. The industrial centers of the East have overbid the countryside in the market place where labor was offered and have gone home with the purchase. It is not so much the competition of Maude Adams against Maude Muller, as it is factory wages against farm wages. At all events the farms are left with fewer people.

Turning our attention to the West, we notice that the area within which the country population shows a decline stretches from Columbus, Ohio, to Lincoln, Nebraska, and from St. Paul to St. Louis. The situation is quite unlike that of the East, though not in every particular. While many have moved to town a greater number has moved on to the West and Northwest, largely into Canada. This emigration to the sections where cheaper land may be had has been going on for a century and has been a matter of great concern to the older states from which the emigrants have moved. In the Middle West the number of farms has decreased and at rates not greatly dissimilar for the different states: 2 per cent. in Ohio, 4.6 per cent. in Illinois, 5.1 per cent. in Iowa. However, the number of acres of land in farms undergoes little change, and the number of improved acres still less. Hence the size of the farm

has increased, in Iowa for example, about five acres; in Illinois, about five acres. And on these farms the amount of produce is not growing less. True, there has been within the past ten years a decrease in the number of cattle, but dairy cows are more numerous; hogs have decreased somewhat, but unquestionably this is more or less temporary. The quantities of corn, oats, and hay; of milk and butter, are on the increase; even the supply of wheat is not falling off greatly. The improvements on these farms are growing every year. Houses, barns, fences, and groves improve steadily. The value of the farm as a whole has more than doubled in ten years. Better roads, telephones, rural mail delivery, and interurbans bring new comforts, overcoming the old inconveniences. But in spite of it all, the people move away. In Ohio, in 1890, the average number of inhabitants per farm was 7.1; now it is 6.1, or exactly one person less. In Iowa, for the same twenty years, the decrease has been from 5.9 persons per farm to 5.1, a decline four fifths as great as that in Ohio. In Illinois the decrease is from 6.7 persons per farm in 1890 to 5.9 in 1910, or the same as that shown in Iowa.

A most significant change in farm property here as in the East is the advance in the value of farm implements. For the two North Central divisions of states this increase amounts to 74.9 per cent. In Illinois it is 64 per cent., in Iowa, 65 per cent. This means an increase, not alone in the number of machines, but in the effectiveness of machines, corresponding very closely to the increase in value. In other words, the farmers and farm laborers of the Middle West are over one and a half times as well equipped with tools for doing farm work as they were ten years ago. The increase in the expenditure for labor during the past decade in the two north central divisions of states was 76 per cent. This advance no doubt represents almost altogether advance in wages per man, and not increased number of men.

The tendency toward a sparser rural population has not been confined to the decade just past. It has been going on for a much longer period, and represents a struggle in the mastery of power. The evolution of the plow will serve as an

illustration. Even within the short history of a state like Iowa the most primitive methods have been employed. The spade has been used for turning the sod, though not to a great extent. The usual equipment during the early years was a yoke of oxen and a simple walking plow cutting some twelve or fourteen inches. This outfit was sometimes handled by one man, but just as often it took two, and when a horse was hitched ahead of the oxen, making the famous "Spike team" it was by no means rare to require two men and a boy for the guidance of this curious composition of motive power. And with all this effort from one to two acres of land was plowed in a day, as a rule a long day. About the period of the Civil War the ox lost prestige as a draft animal and was succeeded by the horse. This evolution came about not by accident, but rather because men were scarce and their services dear. Hence it was thought to be good business sense to give them more effective tools and so get more out of the men themselves. The farmer of this period, say 1865 to 1880, plowed ordinarily with two horses, and turned from two to three acres a day. Then came another forward step, gradual indeed, and the three-horse plow, frequently a riding plow, became the commonest kind in use. It was but a mere detail to change the single plow to the gang plow, and with four horses, the farmer, very often the same one who had done his part in plowing a single acre a day, now plows five acres. The last step in the process up to date is the tractor engine plowing outfit with which two men have plowed forty acres in a single day, and for show purposes, three engines hitched to a gang of fifty plows, at Purdue, Indiana, a few weeks ago, plowed an acre in four and a quarter minutes.

The same course has been run by the cultivator. Men are still living who have used the hoe as the main means of cultivating a corn field. They had done a good day's work if they hoed a half-acre. Then came the double-shovel plow, and with one horse three or four acres could be cultivated in a day. Next came the one-row cultivator, now commonly in use, and with it a man cultivates from six to ten acres a day. But there are two-, and even three-row cultivators in use.

With the hoe a man did well to tend eight or ten acres of corn a year. With modern equipment six times that amount is a very ordinary undertaking.

We may take at least a glance at the reaper. Since the Civil War the cradle was in use on both sides of the Mississippi River. Then a man did well to cut two acres of grain a day, and another man did exceedingly well to bind it after him. With the reaper which came into use about that time a man and two or three horses cut ten acres a day, but it still took the same amount of help for binding. It required eight men to cut, bind and shock ten acres in a day. With the modern self-binder this can be done by two men. Thus within the memory of men now living the amount of manpower required to harvest an acre of grain has been reduced 80 per cent.

Within the limits of this paper it would be impossible to give even a meager sketch of the many mechanical means by which the feeble physical powers of the man with the hoe are multiplied. Besides plows, cultivators, and reapers, there are harrows, planters, seeders, windmills. There is the aid of the ox, the horse, the steam or oil engine, and the electric motor. And they all mean more land farmed by one man, or in other words, fewer people per square mile of rural territory.

The increased use of farm implements is reflected in the number of horses used. The past ten years has been a period of high prices and feed has been so dear that, according to reports, the numbers of meat-producing animals have often been reduced because it was doubtful economy to feed them even though the market for the animals was certain and the price high. Under these circumstances it can hardly be assumed that the farmers are keeping horses merely for pleasure; but on the contrary that the horse on the farm must justify his existence even more than formerly. The number of horses raised for the city market is not appreciably greater than before, while the number shipped out of the country is negligible. The horse on the farm is there to do work on the farm. While other classes of livestock have decreased in

numbers horses have become more numerous. In Illinois, for example, the numbers of horses on farms has increased during the past ten years, 160,000, or 13 per cent. On an average there are for every Illinois farm 5.5 horses in place of 4.6, the number ten years ago. In Iowa an increase of 13.7 per cent. in horses has raised the number at the disposal of each farmer from five to six. This additional horse, together with the added equipment in the form of machinery means that a given man on a farm can do a fifth more farming now than ten years ago. He can therefore work more acres than he could work ten years ago, and he is doing it. The farms are larger.

It is then not surprising that the farms are a little larger than formerly. In the Middle West, outside of the districts influenced by the proximity of cities, the size of the farm has grown steadily. This is not true to the same extent as in the East, where conditions favoring the large-scale farming are not so prevalent. In Illinois the size of farms during the past thirty years has been increasing slowly for the state as a whole, with a more rapid increase in the better portions. In Iowa the average size of farms has increased twenty-four acres in thirty years and the movement seems to be still in progress. This increase in size of farms is, roughly, co-extensive with the area over which the population is decreasing. The increase in the size of farms points to the slow movement toward a more efficient unit, and a more efficient unit means economy of the factor labor, or, in other words, fewer people on a given area.

One of the economic wonders of recent years is the increase in the price of farm land. It has more than doubled in ten years for the entire country. But the sections of the West where the price has risen the most rapidly and reached the highest point, leaving out of account the truck farming districts, are just those in which the rural population has shown the greatest decline. This is not so clearly the case in the East where complications arise on account of the disuse of a considerable acreage formerly in farms. Throughout the country west of the Hudson River the decrease in population has accompanied an increase in size of farms, and this fact added to that

of increasing land values augments the rise in value of the farm as a unit.

Another coincident fact is the growth of farm tenancy. On the high priced land of the Middle West the percentage of tenancy is greater than anywhere else outside of the cotton belt. For example, in every state in which general agriculture predominates, the outline of the counties showing the highest land values is at the same time the outline of the section in which the greatest percentage of farms are in the hands of tenants. And *vice versa* the lowest priced land is mainly farmed by the owners.

The rise in the value of land seems to be coincident with a decrease in the number of people living upon it. Land which is being efficiently used is manifestly more valuable than similar land not so economically used. It may seem somewhat paradoxical, but it is true that within the Middle West the population varies inversely with the land values. In Ohio, for example, the number of rural people per thousand acres of farm land in the ten counties with the lowest average values of land is 73.4; in the ten counties showing the highest average values per acre (excluding as not comparable those containing large cities), the number of rural people per thousand acres of farm land is 70.6, or 2.8 less. The same test applied to Illinois shows in the ten counties of lowest priced land 44.5 rural people per thousand acres of farm land, and in the ten counties with the highest priced land, but 37.7, or 6.8 fewer people than on the thousand acres of the cheaper land. The same holds true of Iowa. Varying the test for Iowa, and viewing it from the standpoint of tenancy, it appears that in the ten counties of highest percentage of tenancy there are 27.5 persons per thousand acres of farm land, while in the counties of lowest tenancy there are 34.5 persons per thousand acres of farm land. The tenant is on an average a much younger man than is the owner. A larger percentage of tenants are just beginning married life and the numbers of their families are small. Since the tenants are predominantly on the land high in price similar results will be found by applying the same test as within the other states.

The conclusion seems inevitable that there are more rural people living in those districts where land is used primarily as the foundation for a home rather than as an investment. Where it is capitalized at the highest possible figure and put upon the market either for sale or for rent, it falls into the hands of men who exploit it commercially and in doing so handle as many acres as their means and skill will permit, pushing the number of acres as high as possible for each rural laborer belonging to the family, either as a member of it or as a hired helper. This unconsciously reduces the number of rural people living on a given number of acres. It is a part of the same set of forces which leaves the poor land in the hands of owners and puts high priced land in the hands of tenants. On the poor land competition is not so strong. The land may easily be worth more than it is selling for. The farmer of mediocre ability can make a living. Moreover the purchase price is not so great and one of modest means is able early in life to make the payments necessary in effecting a purchase. The size of the farm remains smaller, largely, no doubt, because it is not well adapted to the use of machinery. All of the last mentioned circumstances work toward a relatively large rural population.

That the situation is a grave one cannot be doubted. On the other hand it is not clear that society should bestir itself in efforts to replace the deficiency in population by forcing recruits from the cities into the rural ranks. Some city men are useful in the country; many more of them are not. Again, it should be remembered that not much land is being held out of cultivation speculatively, or for pleasure purposes. Very little land is being abandoned and the most of that which is has not been found worth farming. The decrease in rural population does not mean race suicide; it means economy and efficiency in the use of labor power.

What is needed is the promotion of the prosperity of the farms. An arrangement should be made by which the farmer could get as much for producing eggs as a middleman gets for storing them a month or two after they reach town, so that the rice-grower could get something over two cents out the ten which the consumer pays for a pound of rice, and so

that the producer of beef might make as much for growing it as the proprietor of the meat market makes for cutting it to pieces. When the farmer gets an equitable share of the high cost which the consumer pays for his living the soil will be used to a fuller capacity, and the whole people will be the gainers. The numbers of people living in the country will be determined not by sentiment, neither by law, but by conditions which adjust the balance between country and city employment.

THE DECLINE OF THE RURAL POPULATION IN NEW ENGLAND.*

By Alexander E. Cance, Ph.D., *Massachusetts Agricultural College.*

The total population of New England is about 6,500,000; in 1890 it was 4,700,000. The present rural population as defined by the census is a little over 1,000,000, or about one sixth of the whole; in 1890 some 1,139,000 people were living of rural communities, or practically one fourth of the total population. In other words, the rural population has declined relatively to the total in every New England state, and absolutely in every state except Massachusetts, and in New England as a whole since the federal enumeration of 1890.

It scarcely needs to be pointed out that the rural population of the New England States is not very accurately measured by enumerating the towns containing less than 2,500 inhabitants. In many of the rural towns, so defined, a comparatively large percentage of the inhabitants are engaged in industrial pursuits. Indeed, many of the strictly rural towns are very small. In Massachusetts, 87 of the 202 so-called rural towns returned less than 1,000 inhabitants each in 1910. In New Hampshire 70 per cent. of the 209 towns with less than 2,500 population reported less than 1,000 persons each at the last census. Small cotton or woolen mills, pearl button factories, wood products establishments, hat shops and the like are not unusual in towns of less than 2,500 people. On the other hand, of course, since villages and countryside are infrequently distinguished in the enumeration of New England towns, a greater or smaller number of country dwellers, rural inhabitants, are found in a very large percentage of towns with 2,500 or more inhabitants. The census takes no account of these as rural people. Both these inaccuracies tend to minimize or underestimate the agrarian shift. A more careful differentiation of agricultural from industrial towns in western Massachusetts reveals unmistakably a much

*Discussion of Dr. Hibbard's paper on "The Decline in Rural Population," Washington, D. C., December 28, 1911.

more marked falling off in population in the agricultural than in the industrial centers. In fact, almost the only rural towns in the agricultural counties of Massachusetts that have gained in population since 1890 are those with industrial establishments or some form of specialized agriculture attractive to immigrants. The other towns have declined to the vanishing point.

This means that the statistical story of the movement away from New England has not yet been told in its entirety by census bulletins. The movement is both inevitable and to a degree economically wise. The fact of the shift is well recognized. Indeed, one of the most significant facts about the falling off of New England's rural population is that there is little new about it. The exodus from the more forbidding soils began as early as the confirmation of the title to Connecticut's Western Reserve, and over larger or smaller areas the outward movement has been going on for more than a hundred years.

To give statistical point to the account, consider the four western counties of Massachusetts. These counties include the Berkshire Hills, the Connecticut Valley and a small part of the eastern highland. They are dominantly agricultural, although they have large manufacturing and commercial interests, and they exemplify both the specialized forms of agriculture of the rich river soils and the country homes of the Berkshires. Of the 79 towns in these counties with populations of less than 2,500 in 1910, only four reported their maximum populations. Two of them owe their present prestige to recent accessions of rural immigrants, one to the development of trolley lines and the country home movement and one to new industrial opportunities. Of the remaining 75 towns, 62 had fewer inhabitants in 1910 than in 1890 or 1900. That is to say four fifths of the rural towns show a perceptible present falling off. A study of the population movement of these 62 towns by decades since the first enumeration reveals the fact that 71 per cent. of them had attained their maximum numbers by 1850, and then began to decline; 40 per cent. reached the highest figure by 1820; 16 per cent. by 1800; and five towns reported larger populations in 1790

than at any state or federal census since that time. Only six towns attained their maximum populations between 1880 and 1910. The aggregate population of the 62 towns in 1910 was 41,865, or an average of 675 persons per town. The maximum populations aggregated 82,860, or almost twice the present numbers. From their highest census figures the country towns of western Massachusetts have fallen off nearly 50 per cent.

Conditions in western Massachusetts are fairly typical of rural New England as a whole. In some respects the agricultural situation is somewhat more favorable than in eastern Connecticut, western Rhode Island, the seacoast counties of Maine, or the greater part of New Hampshire, but in the large almost all the present causes making toward depopulation in New England are operative in western Massachusetts.

It is noticeable that the smaller, rougher, more unfertile and commercially isolated towns have suffered the greatest exodus. Some contain less than one third of their former number of inhabitants. These towns fell away early, both in population and productiveness, and in but few instances have they been able to recover. A perusal of their vital statistics shows that the native stock is dying out. There is little or no immigration and the deaths exceed the births. In such towns agriculture is usually primitive and decadent. Great tracts of rough land, formerly cultivated in grain or tame pasture have been allowed to grow up to white pine and chestnut sprouts and the numerous cellar holes, found here and there through the wooded areas, marking the original sites of farm houses, attest a former prosperity that has now become merely a recollection.

The hill towns were early abandoned for the better West and the greater economic opportunities of the small manufacturing towns. The poorer soils were soon depleted; the early agricultural sub-industries were forced out, one by one, by the sharp competition of western lands, more than half a century ago. The cities have competed for the young men and women and the urban attraction has varied inversely with the distance and directly with the increasing opportunities for intercourse between country and city.

Even during the last decade land values have advanced rather slowly in the hill towns. Many of the holdings are too small for profitable agriculture on a basis of staple crops and products. Fields are rough, irregular, and not large enough for the economic mobilization of heavy farm machines. The soils must be fed liberally and cultivated with care. Only in those towns whose farmers have reorganized their agriculture and readjusted their methods to suit changed conditions of supply and markets have the native New England farmers been able to hold their own. The unprofitableness of agriculture and the relative profitableness of industrial pursuits are prime causes for the rural exodus from numerous towns. A great many factors have operated to depopulate New England; most of them have been iterated and reiterated, and probably each of them obtains in some section, but in most instances the ultimate heart of the matter must be sought in the recent unprosperous conditions of agriculture and the unsatisfactory returns received for the energy, often disagreeably expended. To retain the rural population there must be a reorganization of agriculture. Some readjustments must be made to insure reasonable rewards and a better living. Failing that, the native rural people must give place to a farming population with a lower standard of living or greater capacity for sustained and disagreeable exertion.

It is interesting to note the result where this reorganization of agriculture is taking place. Census statistics do not record the population changes in towns lying close to large cities, where market gardening, greenhouse vegetables, floriculture and small fruits have taken the place of the staple crops. But in northern Maine, western Massachusetts, and parts of the Connecticut Valley, where specialized crops such as potatoes, onions, or tobacco are grown, the movement outward has been arrested and in instances the return tide has set in.

One hears frequent disquisitions concerning the repopulation of the countryside and the restoration of the worn-out soils by alien immigrants. The influx of immigrants to agricultural districts has reached significant proportions in a number of towns where fertile soils, adapted to specialized

crops demanding a maximum of manual labor, are found in comparatively extensive areas. Several towns in the Connecticut Valley both in Connecticut and Massachusetts have materially increased their numbers by foreign additions since 1885; this influx shows no signs of diminution, and the great natural increase of the foreign born insures their permanent occupation of the rural communities of their adoption. It is doubtful, however, whether the rough, stony, exhausted hill towns, commercially isolated, will ever be repopulated by rural immigrants; it is too difficult for aliens, unlearned in methods of modern agriculture to gain a permanent foothold on the worn out New England hills. The towns that have suffered the greatest comparative losses can be recuperated only by such a reorganization of the agricultural industry as shall adapt the soil to its most profitable uses by the application of scientific knowledge, the development of transportation facilities and the betterment of conditions of rural living.

One factor in the problem of rural depopulation not frequently noticed is the preponderance of males in small rural communities. An examination of the state population statistics for 1905 of the 62 towns of western Massachusetts previously discussed reveals the significant fact that the number of males exceeds the females by 5 to 12 per cent., varying somewhat in the different towns. Apparently the young women find the opportunities greater in the cities or the burdens of rural life heavier and they desert the countryside more readily than the men. The sex distribution is the exact reverse of that in New England cities. Until recently the rural community has offered few attractive vocational opportunities to women, consequently they have sought richer fields elsewhere. Young men find a corresponding dearth of marriageable women in many of the hill towns and must seek wives in other places or bear the handicap of celibacy. Statistics seem to support the contention that farm life has laid heavy tribute on rural womankind.

The "back to the land" movement in New England has taken two principal directions: toward small farms, more or less specialized, and toward country homes for urban dwellers. Neither movement has made much impression on census

statistics. Within 25 years a great many transfers of old farms have taken place. In some communities almost every farm has passed into new hands. Good highways, automobiles and trolley lines have made the picturesque parts of New England accessible and have stimulated the search for country homes. Old homesteads have become gentlemen's estates, or show places, few of them devoted to productive agriculture. The comparatively low prices of real estate have brought many urban people of moderate means into the country and in instances the demand for old homesteads has been so great that prices have risen 50 to 100 per cent. within a few years in certain favorably located towns.

The recent discussion of the high cost of living brought out a great deal of misinformation and much spurious advice in regard to small scale agriculture, and a host of wage earners and small salaried men and women have been looking for liberty on three acres. Some have wisely combined agriculture with their regular industrial occupations and are meeting with more or less success. Others are paying the penalty of ill-advised rural undertakings and will repent leisurely. The movement has not greatly increased the population of small towns remote from the large centers. It is questionable whether it will be permanent. Of the two, the country home movement is likely to prove the more helpful to rural New England.

REVIEWS.

A STATISTICAL ANNIVERSARY.

The 8th of February, 1912, marked the fiftieth anniversary of the establishment of the Statistical Bureau of the City of Berlin (*Das Statistische Amt der Stadt Berlin*). The first movement to centralize the statistical work of the different municipal departments in one bureau began six years earlier, receiving its first impulse from the directors of the Berlin charities.

Prof. Dr. Heinrich Silbergleit, the present director of the bureau, in a brief historical memorial commemorating this statistical jubilee, cites the enormous growth of the City of Berlin, which in fifty years has almost quadrupled, and says with evident pride that the publications of his bureau picture statistically for all these years the growth and spread of social legislation, the great transportation work undertaken by the state or on private initiative, the communal provisions which have become a pattern for all the world in the domain of hygiene, for the care of the sick and defective, for education and culture, for the proper distribution of articles of food, for housing, the building of streets and their up-keep, etc. That this is not an empty boast one may infer even from a mere reading of a list of the publications of this exceedingly industrious bureau to which reference is made below. It began, however, in a most modest way. The first appropriation for work amounted to only 600 *Taler*. In 1868 the magistracy provided for a director of the bureau and one technical assistant while the necessary clerical force was loaned by other departments. But in 1912 the force of the bureau consisted, aside from the director and several scientifically trained assistants, of a clerical force of 43. It is interesting to note in this connection that the bureau has afforded an opportunity to volunteers who wished to obtain statistical training through practical work. Many such have from time to time been connected with the bureau from which they have graduated to leadership in statistical work in other places.

A complete list of the different publications of the statistical bureau from its inception would occupy several pages. The more important are weekly reports (since 1872); monthly reports (since 1873); annual reports of the movement of population (since 1869); annual reports of morbidity and mortality; statistics of marriage and divorce begun in 1885; and the the statistical year-book (since 1867). The bureau has participated in every census of population since its foundation and published numerous special studies, for instance, in regard to loan establishments, sick insurance, labor conditions, housing, building, domestic economy, transportation, etc. In connection with the statistical bureaus of Charlottenberg, Rixdorf, Schöneberg and Wilmersdorf, it has begun the publication of monthly statistical reports for Greater Berlin.

Aside from its ordinary official duties, the Bureau has been enabled to participate in numerous local, national, and international expositions. Thus it has been represented at every meeting of the International Congress of Hygiene and Demography since 1882, at the World's Fair in Paris, the International Tuberculosis Congress in the same city, and lastly at the World's Fair at Turin and the exposition of the International Hygiene Congress at Dresden, not to mention numerous minor expositions.

The bureau maintains its own library which is subsidized by the municipality and at present contains more than 36,000 volumes. It is probably true, as Doctor Silbergleit remarks, that as a repository of information in the field of municipal statistics this library is unsurpassed in the world.

While the City of Berlin celebrates the fiftieth anniversary of its Statistical Bureau (yet it is by no means the oldest in the world), there is not a single American municipality which in the full sense of the word may be said to possess this adjunct to efficient government. In Germany, even some of the municipalities of the third and fourth class have come to regard statistical bureaus as a necessary part of the municipal machinery. Austria-Hungary also sets a good example in this respect, likewise some of the cities of France, England, and the Scandinavian countries. Is it really a token of progress and enlightenment that our municipalities go about their business without taking scientific measurement of methods and results? Or is it not really an indication of backwardness that we manifest so little desire for systematic knowledge about municipal conditions and permit bureaus of statistics that have been established to languish for lack of authority and proper support?

J. K.

RECENT POPULATION GROWTH OF FOREIGN COUNTRIES.

During the years 1910 and 1911 many countries took a census of their population. The results in most cases have now been published at least to the extent of giving the number of persons or inhabitants enumerated. The following table shows the populations as nearly as possible at the beginning and at the end of the first decade of the twentieth century, together with the percentage of increase during the decade:

Country.	Year.	Population.	Year.	Population.	Percentage of Increase.
Australia	1911	4,455,005	1901	3,773,801	18.1
Austria	1910	28,567,898†	1900	26,150,708	9.2
Bulgaria	1910	4,329,108†	1900	3,744,283	15.6
Canada	1911	7,204,527	1901	5,371,315	34.1
China	1910	329,542,000	....	.....	....
Cuba	1910	2,220,278	....	.....	....
Denmark	1911	2,757,076	1901	2,449,540	12.6
France	1911	39,601,509†	1901	38,517,332	2.8
Germany	1910	64,903,423	1900	56,367,178	15.1
Hungary	1910	20,840,678†	1900	19,254,600	8.2
India	1911	315,132,537	1901	294,361,056	7.1
Italy	1911	34,686,653†	1901	32,475,253	6.8
Japan	1908	51,741,853	....	.....	....
Mexico	1910	15,063,207	1900	13,605,919	10.7
Netherlands	1909	5,853,037†	1899	5,104,137	14.7
Norway	1910	2,392,698†	1900	2,240,032	6.8
Spain	1910	20,900,123	1900	19,860,295	5.2
Sweden	1909	5,476,441	1900	5,136,441	6.6
Switzerland	1910	3,753,293	1900	3,315,443	13.2
United Kingdom:					
England	1911	34,043,076	1901	30,807,310	10.5
Ireland	1911	4,381,951	1901	4,458,775	1.7*
Scotland	1911	4,759,445	1901	4,472,103	6.4
Wales	1911	2,032,193	1901	1,720,533	18.1
United States (Continental)	1910	91,972,266	1900	75,994,575	21.0

* Decrease. † Preliminary.

No other country in the table shows a percentage increase equal to that for Canada which grew at the rate of 34.1 per cent., continental United States coming next with a rate of increase of 21 per cent. The next highest rate of growth during the decade, 18.1 per cent., is shown by Wales and by Australia, while Bulgaria grew at the rate of 15.6 per cent. Other countries which made an increase of over 10 per cent. are: Germany (15.1 per cent.), the Netherlands (14.7 per cent.), Switzerland (13.2 per cent.), Denmark (12.6 per cent.), Mexico (10.7 per cent), and England (10.5 per cent.). The lowest rate of increase shown in this table is that of France, 2.8 per cent. The only actual falling off in population is shown by Ireland, whose population decreased 1.7 per cent. during the decade.

Since Ireland is in a class by itself, as the only country with a decreasing population, and since a considerable share of the population which was lost to Ireland came to the United States, it may be worth while to show the population as far back as it is available:

POPULATION OF IRELAND.

Year.	Population.	Increase or Decrease.
1821	6,801,827	....
1831	7,767,401	14.2 per cent.
1841	8,196,597	5.5 "
1851	6,574,278	—19.8 "
1861	5,798,967	—11.8 "
1871	5,412,377	— 6.7 "
1881	5,174,836	— 4.4 "
1891	4,704,750	— 9.1 "
1901	4,458,775	— 5.2 "
1911	4,381,951	— 1.7 "

The population of Ireland has been decreasing for the last seventy years. The rate of decrease was nearly 20 per cent. between 1841 and 1851; after that it declined, until between 1871 and 1881 it was only 4.4 per cent.; from 1881 to 1891 Ireland again lost a greater share of its population, 9.1 per cent., but since then the rate of decrease declined decidedly. From 1901 to 1911 the population was almost stationary, decreasing only 1.7 per cent. Thus Ireland shares with France the distinction of having a nearly stationary population at the present time.

It is interesting to note the officially estimated population of China, 329,542,000; a figure much below the current estimates and yet the greatest for any country of the world, with India's 315,132,537 a fairly close second. Together these two Oriental countries contain more than two fifths of the estimated population of the world. It must be noted, however, that the returns for China are only approximate, being based on an enumeration of households, the number of which was multiplied arbitrarily by 5.5 to obtain the number of individuals.

The population of some of the principal cities of the world is shown in the following table:

POPULATION OF GREAT CITIES.*

City.	Year.	Population.	Year.	Population.	Percentage of Increase
New York	1910	4,766,883	1900	3,437,202	38.7
London	1911	4,522,961	1901	4,536,267	0.3†
Paris	1911	2,888,110	1901	2,714,068	6.4
Chicago	1910	2,185,283	1900	1,698,575	28.7
Tokyo	1908	2,186,079	....	.....	.....
Berlin	1910	2,071,257	1900	1,888,848	9.7
Vienna	1910	2,030,850	1900	1,674,957	21.2
Philadelphia	1910	1,549,008	1900	1,293,697	19.7
Osaka	1908	1,226,647	....	.....	....
Calcutta	1911	1,222,313	1901	1,196,738	10.4
Pekin	1910	1,017,209	....	.....	.....

It appears from the table that New York is the largest city in the world, and shows the highest rate of increase, 38.7 per cent. If to the administrative county of London, which is the area comparable with New York City, is added the population of the Outer Ring, consisting of a large number of politically independent suburbs, the population of Greater London thus constituted reaches 7,252,963; the population of the urban district of New York, including the densely populated suburban territory adjoining the five boroughs that constitute New York City, reaches 6,474,568. Many of the other large cities are also surrounded by populous suburbs; thus the population of Greater Berlin, including its suburbs, was about 3,000,000 in 1905, and about 3,500,000 in 1910.

* The table includes all the cities definitely known to have a population of over a million, except Moscow and St. Petersburg, for which no recent data are available. In addition to these, Buenos Aires, Canton, Constantinople, and Singan have estimated populations of over a million, but official data are lacking.

† Decrease.

While the urban district of London is thus greater than the urban district of New York, the population of Greater London increased from 1901 to 1911 by only 10.2 per cent., while the population of New York, with its suburbs, increased from 1900 to 1910 by 40.5 per cent. If New York and London maintain their present rate of growth, greater New York will pass greater London in 1915, will have a population of about 9,000,000, in 1920 and will then have outgrown greater London by about 1,000,000.

Next to New York, the highest rate of growth, 28.7 per cent., is shown by Chicago, which outgrew Berlin during the decade and took the fourth place in the list. The population of Vienna increased 21.2 per cent., and Vienna, which was over two hundred thousand behind Berlin in 1900, came within forty thousand of that city in 1910. The population of Philadelphia increased about 20 per cent., that of Berlin and Calcutta about 10 per cent., while Paris shows an increase of only 6.4 per cent. in ten years.

The comparison made between the growth of London and of New York is quite typical of the cities of England and Wales as compared with those of the United States. The rate of growth of the 98 cities in England and Wales having a population of over fifty thousand in 1911 was 15.3 per cent. between 1891 and 1901, and 8.7 per cent. between 1901 and 1911. The corresponding 109 cities in the United States, that is, those having a population of at least fifty thousand in 1910, grew at a rate of 32.7 per cent. between 1890 and 1900, and at a rate of 35.3 per cent. between 1900 and 1910. Thus the rate of growth of the cities of at least fifty thousand inhabitants is four times as great in the United States as in England and Wales, and the rate of growth in the American cities is increasing while that of the English and Welsh cities is declining. While London proper lost 0.3 per cent. of its population between 1901 and 1911, the Outer Ring increased at a sufficient rate, 33.5 per cent., to change this loss into a gain for Greater London amounting to 10.2 per cent. The declining rate in the growth of other cities of England and Wales is often due to the growth of suburban residences, rather than to an actual slackening in the development of the cities. Thus, for instance, the population of Birmingham increased only 0.5 per cent. from 1901 and 1911, but Birmingham is surrounded by suburbs that are essentially parts of the city and have been incorporated with it after the census was taken; when these suburbs are included the rate of growth of the city is 10.7 per cent., which compares favorably with the 9.2 per cent. of the previous decade. The situation in Liverpool, Manchester, and doubtless in other cities is similar to that in Birmingham.

E. A. GOLDENWEISER.